

Wound Care

C A N A D A

FALL 2019
VOL.17 NO.3



THE OFFICIAL PUBLICATION OF WOUNDS CANADA

Malnutrition and Wound Healing

**Session Summaries
from the
Fall Wounds Canada
Conference**

**Patient-
administered**

**E-Stim for
Wound Healing**

**Providing
Wound Care in a
Consumption and
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Service Setting**

**Revisiting the
Wound Care
Instrument**



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The Westin Harbour Castle



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Wounds Canada is the leading wound-related knowledge mobilization organization in Canada.



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25 years of advancing wound prevention and care

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Wounds Canada (www.woundscanada.ca) is a non-profit organization of health-care professionals, industry participants, patients and care partners dedicated to the advancement of wound prevention and care in Canada.

Wounds Canada was formed in 1995 as the Canadian Association of Wound Care. The association's efforts are focused on four key areas: education, research, advocacy and awareness, and partnerships.

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News in Wound Care

Wounds Canada News

2019 Fall Conference Wrap-Up

Our fall conference, Driving Change in Wound Care, was held in Niagara Falls, ON, October 3–6. The event was well attended and provided attendees with 66 inspirational sessions delivered by 80 expert local, national and international speakers. Delegates had the opportunity to read 50 research posters and attend oral poster sessions where they could ask questions and exchange ideas with the poster authors. Our industry partners presented 12 sessions and their booth representatives were in place during exhibit periods to pass



Niagara Falls 2019

**Fall
Conference**

OCT. 3–6, 2019
NIAGARA FALLS, ON

The Wounds Canada Foundation's Now We Can! Campaign

The Wounds Canada Foundation was officially launched at our fall conference with the Now We Can! Campaign and the hashtag #wipeoutwounds. To read more about the campaign, see page 40.

The Wounds Canada Foundation is a charity created by Wounds Canada to support Canadians who have wounds or are at risk for developing wounds. For more information, visit www.woundscanadafoundation.ca.



Limb Preservation in Canada

Limb Preservation in Canada is Wounds Canada's latest publication, focused specifically on the issues of diabetic foot complications and limb preservation. [Click here](#) to view the inaugural issue!

This publication began as a supplement to *Wound Care Canada* to provide a summary of the sessions offered at the New Perspectives in Diabetic Limb Preservation symposium held in Toronto in May 2019. But, as we put together the summaries of the event we decided to create an annual, standalone publication—*Limb Preservation in Canada*—and turn it into a peer-reviewed journal aimed at advancing knowledge and its application to practice, research and policy making for this growing community. Subsequent issues of *Limb Preservation in Canada* will feature an



along their expertise on new and familiar products. As always, the conference, which is the largest of its kind in Canada, gave attendees many opportunities to network with colleagues, wound experts, patients and others who share their interest in wound prevention and management.

Thank you to all those who attended for your enthusiasm and energy throughout the weekend! Be sure to read the session summaries from this event, starting on page 12.

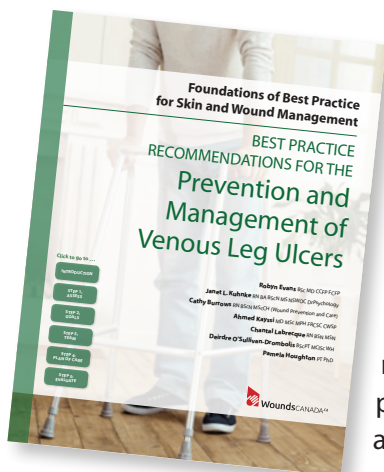


expanded range of article types to improve the understanding among stakeholders working in the area of limb preservation.

Best Practice Recommendations (BPRs)

Have you read **Best Practice Recommendations for the Prevention and Management of Venous Leg Ulcers**?

The eighth chapter of Wounds Canada's *Foundations of Best Practice for Skin and Wound Management* was released at our fall conference in October. The recommendations included in this article are based on the best available evidence, are patient driven and are intended to support the clinician and integrated team in implementing and sustaining best practices in the prevention and management of venous



leg ulcers.

Download this resource today for key information about how to optimize your assessment, set goals, assemble a team, establish and implement a plan of care and evaluate outcomes to ensure your patients receive the best possible care to support prevention and management.

Coming soon: **Best Practice Recommendations for the Prevention and Management of Arterial Leg Ulcers**

Stay tuned for the release of chapter 9, Best Practice Recommendations for the Prevention and Management of Arterial Leg Ulcers. Join our mailing list by sending an email to info@woundscanada.ca to make sure you don't miss it!

Don't forget! Seven other BPRs are available for download.

Foundations of Best Practice for Skin and Wound Management is an online resource to assist clinicians in providing the best possible care.

Add a Wounds Canada Institute Program to Your Conference Experience

Participate in the Skills Lab for Local Wound Care, part of the Wounds Canada Institute's Best Practice Approach to Skin Health and Wound Management: Knowledge and Skills (A100NWS) program, on Thursday, April 2, 8:00 a.m. – 4:30 p.m., at the Calgary Plaza Hotel and Conference Centre (the day before Wounds Canada's spring conference, at the same location).

This interactive skills lab, led by expert faculty, builds on the information presented in the

Best Practice Approach to Skin Health and Wound Management: Knowledge (A100MNN) program and will further your knowledge and skills related to local wound care. Students will have the opportunity to practise the skills of local wound care, including wound cleansing, debridement (including conservative sharp debridement), infection management and moisture management (dressing selection).



Click below to view/download the chapters of *Foundations of Best Practice for Skin and Wound Management*.

- Introduction
- Chapter 1: Skin: Anatomy, Physiology and Wound Healing
- Chapter 2: Best Practice Recommendations for the Prevention and Management of Wounds
- Chapter 3: Prevention and Management of Pressure Injuries
- Chapter 4: Best Practice Recommendations for the Prevention and Management of Skin Tears
- Chapter 5: Best Practice Recommendations for the Prevention and Management of Surgical Wound Complications
- Chapter 6: Best Practice Recommendations for the Prevention and Management of Diabetic Foot Ulcers
- Chapter 7: Best Practice Recommendations for the Prevention and Management of Burns

Advocating for Better Wound Prevention and Care

Wounds Canada works with the provinces to advance better wound care education, policy and practice by meeting with government personnel, holding events and providing advisory support. We are currently working with Alberta Health Services and Covenant Health on the spring conference, putting the final touches on a summit report from Nova Scotia on the subject of pressure injuries, and collaborating with Ontario on the development of pathways, the provision of health-care professional education and policies to strengthen wound care (see page 8 for information on one of our recent events).

Looking to 2020

Help Celebrate Wounds Canada's 25th Anniversary

2020 is Wounds Canada's 25th year and, to mark this milestone, we are busy planning a number of



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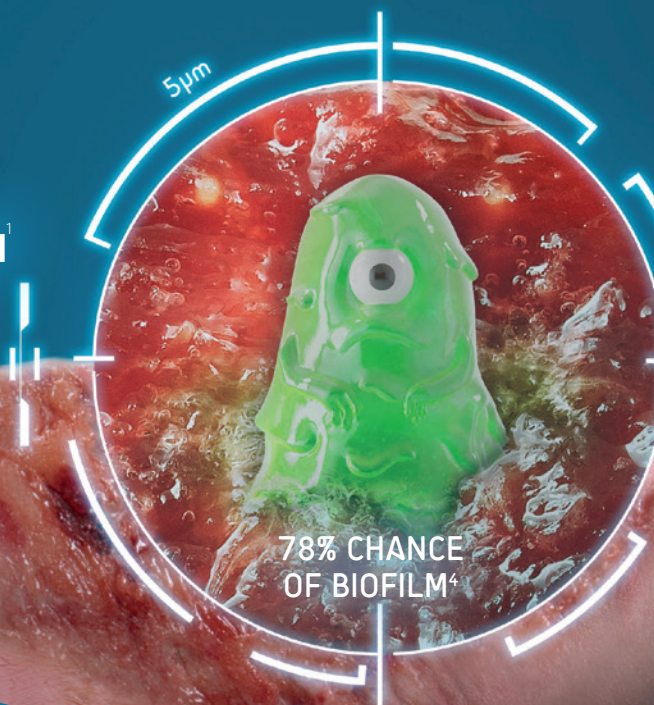
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1. Bowler PG, et al. Parsons, Wound Medicine 14 (2016) 6–11. 2. Metcalf DG et al. J. Wound Care 2016; Vol25, No3. 3. Metcalf DG, et al. Int Wound J 2017; 14: 203–213. 4. Malone M et al. 2017. JWC; 20–25.

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exciting programs and initiatives to ensure this is our best year yet!

Spring Conference, Calgary, AB, April 3–4

Wounds Canada's spring conference is a two-day event for frontline health-care professionals, policymakers, researchers, educators and, of course, patients and their families. The agenda has been developed using needs assessments, extensive consultation with regional representatives and research into the most pressing wound-related issues to address the needs of health professionals in Alberta, the West and the rest of Canada. [Click here](#) for more information and to register today!



Take Advantage of Early Bird Pricing

Take advantage of our early bird discount by [registering](#) on or before January 16, 2020.

The Call for Abstracts is Open

Wounds Canada is now accepting abstract submissions for posters for the spring conference. Top

Save the Date!

Fall Conference, Toronto, ON, October 15–18

Wounds Canada's fall conference is being held October 15–18, 2020, in Toronto at the Westin Harbour Castle. Stay tuned for information about how to register for our special 25th anniversary event!



abstracts will be selected for oral presentation at the conference. This is your opportunity to share your research, experiences and innovations with your peers!

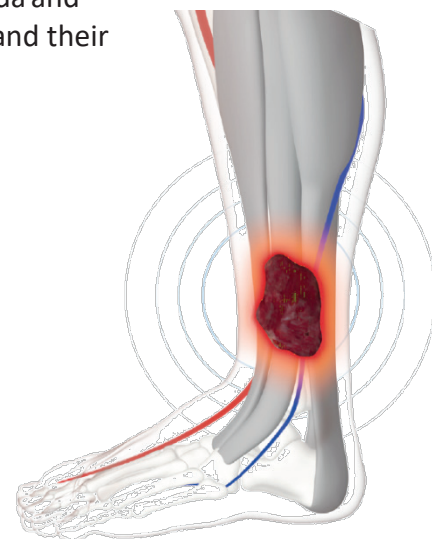
Abstracts may refer to any topic related to:

- the promotion of skin health
- the prevention, assessment and management of various wound types

We invite authors to share information in a broad range of areas, including research, education, health policy and clinical practice. For full submission guidelines, [click here](#).

Lower Leg Ulcers

Wound management is a considerable burden on health systems, in Canada and elsewhere, significantly impacting health and quality of life of individuals and their families (CIHI Compromised Wounds in Canada, 2013).



www.gekowound.ca

info@perfusemedtec.com

Estimated cost-savings of \$2,500.00 per patient if used as a first-line adjunctive therapy for Venous Leg Ulcers along with best practices (WW LHIN Evaluation 2018 Perfuse Medtec Report)

Advocating at Queen's Park, Toronto

On November 20, 2019, Wounds Canada held a reception for Ontario members of provincial Parliament (MPPs) to increase awareness of the burden of wounds in the province. Wounds Canada staff and key volunteers, including patients and health-care professionals, had a chance to speak one-on-one with politicians and their staffs to share information and personal stories of the effect of wounds on Ontario's health-care system as well as on individual lives. A presentation by Wounds Canada's president, Morty Eisenberg, outlined the issue of wounds in Ontario. Patient advocate Linda Moss, the daughter of a patient who died with a pressure injury in a hospital in Ontario, said a few words about her family's experience. Ontario Progressive Conservative MPP Natalia Kusendova, New Democratic Party Health Critic France G  linas and interim Ontario Liberal Party Leader John Fraser all spoke about their parties' commitments to health care for the people of Ontario.

Wounds Canada advocated that the Government of Ontario prioritize wound care, ensuring that patient care is equitable, timely, non-fragmented and accessible across the province. To improve patient care, reduce hospitalizations and cut spending on wound care, key actions must include:

- Developing policies that prevent wounds such as pressure injuries and infected wounds in acute and home care settings
- Increasing wound-related education for health-care providers, patients and families
- Ensuring Ontario's interprofessional teams include wound experts
- Implementing wound care pathways from hospitals to home and community care with set measurables, monitoring and evaluation
- Providing access to products and technology that are evidence-based and improve patient outcomes

Pages 9 and 10 are examples of the advocacy tools Wounds Canada created to increase the awareness of government decision makers on the issue of wounds.

This initiative is an early part of Wounds Canada's larger advocacy effort, which will encompass other provinces and territories in the coming years.



About Wounds

A primer for the non-clinician

What is a wound?

A wound is a break in skin integrity due to assault from the outside (trauma) or internal changes that cause skin breakdown (disease).

Minor wounds: Small cuts, scrapes, blisters, and shallow burns over a small area, shallow pressure, shear and friction (abrasion) injuries

Major wounds: Deep cuts, deep and/or extensive burns, surgical incisions, deep pressure ulcers, penetrating wounds, any significant break in the skin that includes other tissues or covers an extensive body area

Wound Healing

In healthy individuals, most wounds heal on their own with minimal intervention. The healing may take time, depending on the seriousness of the wound, but healing continues until closure is achieved.

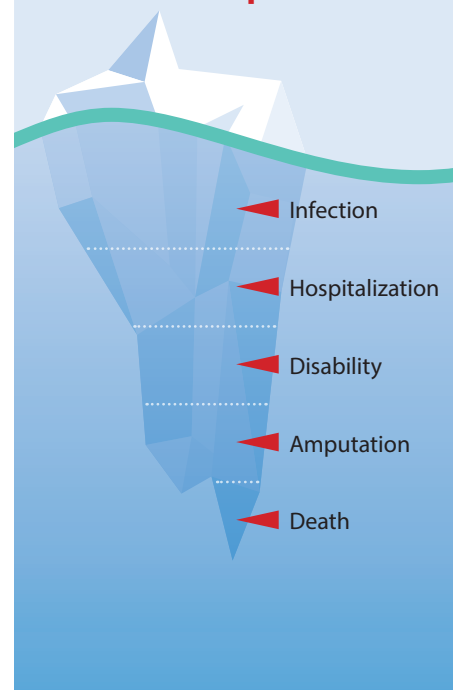
For people with conditions such as diabetes, poor blood flow in the legs, neurological or sensory deficits, musculoskeletal conditions, or other conditions that affect bodily systems, **even minor wounds can become a problem, and major wounds put patients at high risk for complications (such as infection and amputation).** In these individuals, wound healing can be slow, stall or stop completely. Wounds can become worse. These wounds can sometimes be present for years if left untreated or if treated improperly. Patients with non-healing wounds often end up in hospital, sometimes for long periods or repeatedly.



The Impact of Wounds

Major wounds and wounds that don't heal in a timely way or that become complicated are a significant burden to Canada's health-care systems in terms of financial resources, human resources and space in hospital, rehab and home care. For patients, they can lead to significantly altered lifestyle, loss of function, loss of employment, additional illness, amputation and even death. Families, friends and work colleagues are affected too.

Wounds in Canada: The Hidden Epidemic



The Bottom Line

Giving higher priority to wound prevention and treatment—and supporting them through changes in policy, education and practice—will reduce wasted health-care dollars and create a healthier Canadian society.

The Hidden Epidemic

Wounds are **expensive** and affect everyone.



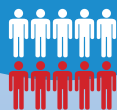
ONTARIO WOUND
CARE SPENDING:

\$1.5 billion²
DIRECT COSTS



Impact of
wound care:

30 to 50%
of all
health care involves
wounds¹



50% of nursing visits³
involve wound care delivery
in the community



35% of persons⁴ receiving
community care have a
chronic wound



26% of persons⁴ in an acute
or non-acute setting have a
pressure injury

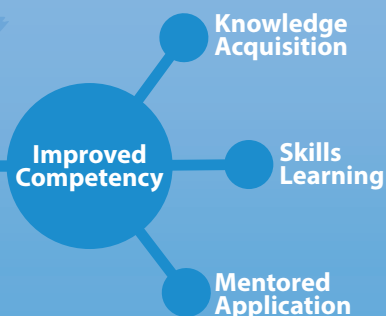
**Preventing and treating
wounds** must be a
priority within health care.



**Patients and their
families** need to know
more about wound
prevention and
self-management.



Health-care professionals
need **training** to learn and
implement best practice.



Best practice-based
wound prevention
and care **will save
money.**

Sources:

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4. OHA, OACCAC, OFCMHAP. 2010. Ideas and Opportunities for Bending the Health Care Cost Curve

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Wounds Canada Fall 2019 Conference: Driving Change in Wound Care

October 3–6, 2019, Niagara Fallsview Casino, Niagara, Falls, ON



Session Summaries – Part I

Wounds Canada held its fall 2019 conference in Niagara Falls, ON, October 3 to 6. Local volunteers attended sessions and prepared the summaries that follow, which include highlights and practice pearls from expert speakers. These summaries reflect half of the sessions; the rest will follow in the next issue of Wound Care Canada.

CAN YOU HEAR ME?

Reporter: Stephanie Chadwick, MCISC-WH NP-PHC NSWOC WOCC(c)

Session speakers: Frank Berns, Linda Moss, Patty Roperti, Sharon Wilson

This keynote presentation featured patients and their families who have experienced wounds within our health-care systems.

Frank Berns was diagnosed with diabetes 20 years ago. He and his wife described the frustration of not being heard while navigating the health-care system, emphasizing that changes

are needed to optimize patient care. Their key message was that preventing amputation for individuals with diabetes requires appropriately educated health-care professionals who understand the complex management of diabetic foot ulcers. In addition, they emphasized that while care partners advocate for their loved ones, they are not necessarily heard. The couple suggested that care pathways should be developed and should incorporate access to appropriate footwear, prevention practices and early assessment.

Patty Roperti, Linda Moss and Sharon Wilson shared the care partner's perspective on wound care following their father's death from a severe

pressure injury. The family advocated for better prevention and care programs in order to help others avoid seeing their loved ones develop a pressure injury. The sisters shared a video they created that has aired on news media, capitalizing on bringing a face, a person, a family forward as recognizable advocates for pressure injury complications.

CHANGE: WHAT DOES IT MEAN TO ME AND HOW DO I BECOME AN AGENT FOR CHANGE?

Reporter: Erin Rajhathy, RN BScN MCISC NSWOC WOCC(C)

Session speaker: Irmajean Bajnok

This presentation discussed drivers for change, provided definitions of roles included in the process of change and sought to teach health-care professionals strategies to cope with managing changes they may not support. Situations in which disappointment and devastation occur are common drivers for change. Policy and regulation are essential for sustaining effective change. Credible change agents should make sure language is clear, and remember the key to driving successful change is to remain humble.

Drivers for change can include economy, evidence, policy, social forces, technology and outdated process. Change is complex. Sustainability for change is difficult without adequate buy-in. The participation of personnel at all levels, especially those in decision-making positions such as managers, is essential to successful change and supporting those who are change agents. Structural change begins with the orientation of new staff and is maintained through follow-up discussed in performance reviews.

In a structural change design, buy-in from others is needed. Agency, which occurs when people are empowered, is an alternative strategy for change. This ensures all participants are invested in the change.

Change agents do not work in isolation. The following must be involved for successful change:

- **Sponsor:** This is someone who has the authority to impact the target.
- **Wound care champions:** These individuals are extensions of the change agent and can be influential.
- **Super connectors:** Within all organizations, these are individuals who know everything and everyone and can use informal connections.
- **Stakeholders:** This group includes all levels of stakeholder, especially those with decision-making ability.

Resistance to change should always be expected. Examples of resistant behaviour include denying reading communications, blaming others and increasing workload. Start small. Make sure your team is resilient. Promote solidarity, higher purpose, safe environment, vitality and reason to ensure success.

Key Points:

- Change agents have to collaborate, communicate and speak the same language.
- Ensure committees include those with opposing ideas.
- Get social support, find your super connector and garner sponsors.
- Think about the stories. Patient stories, including those of despair and devastation, are huge driving factors.
- Persist, persist, persist.





DIABETIC FOOT ULCERS

Reporter: Tim Murray, RN BScNP

Session speakers: Ahmed Kayssi, Amanda Mayo, Scott Schumacher, Kristien Van Acker

This session discussed the importance of prevention, the burden of diabetic foot syndrome and the importance of being engaged and creative when finding solutions to complicated situations.

Kristien Van Acker discussed the global burden, incidence and expenditure caps of diabetic foot ulcers. The cost of diabetes has a huge impact on health-care budgets, and prevention and treatment of diabetes need more focus. She shared that 12% of the global health-care budget is spent on diabetes, which exceeds spending on most types of cancer, including breast cancer

and colorectal cancer. Furthermore, diabetes costs more than the entire economies of the Netherlands and Switzerland. She discussed some of the work being done to address the challenges being faced, and the progress and success of some programs. According to international guidelines, it is critical that patients be categorized for risk and managed accordingly.

Scott Schumacher discussed the biomechanics of wound healing. Wounds are caused by abnormal forces that must be treated. Two-thirds of people with diabetes develop sensory loss preceding ulceration. There is a 15 to 25% lifelong risk of developing foot ulcers, and 20% of those who have an ulcer will require an amputation. The five-year survival rate following an amputation is 55%.

The pillars of wound treatment are infection management, dressings, debridement, preparation of the wound bed and offloading. The timing of treatment is key to ensure ulcer healing, as the risk of developing infection increases with time.

Scott Schumacher asserted that dressings have little place in the treatment and improvement of wounds, citing several studies supporting this view. In Canada, clinicians tend to focus on dressing changes and antibiotics rather than offloading and biomechanical measures (debridement). In certain cases, the more often wounds are debrided, the quicker healing takes place. Orthotics are hugely important, as offloading is the most important in treatment and prevention of diabetic foot ulcers, but devices are not always easily accessible.

Surgery has a place in some greater phalangeal issues. Flexor tenotomy also has a role in the prevention of lesser phalangeal ulceration. Scott Schumacher shared several examples of how surgical intervention has been successful in preventing and treating ulceration.

Amanda Mayo discussed the role of technology in the assessment and management of diabetic foot ulcers. Smart phones and smart footwear are being used in both treatment and prevention. Currently available tools include the following:

- **Smart pad (podometrics):** detects changes in heat, which are indicators for foot ulceration

- **Smart socks:** detect heat changes and predict potential foot ulceration
- **Tissue analytics software:** stores and accurately measures wounds
- **Special wound-focused smart watch:** helps track changes with pictures and information
- **Smart grafts:** a high-technology implant that can be placed next to grafts to help diagnose emerging issues
- **Smart shoes:** connect to technology and allow assessment of foot-load information in real time
- **3D printing:** potential for cost-effective and quick production of orthotic inserts by trained technicians (scan and print can be done within an hour)

Ahmed Kayssi discussed the assessment and management of diabetic foot ulcers beyond technological advancements, emphasizing that most patients in Canada are not receiving the standard of care. Multidisciplinary teams have been shown to improve outcomes in limb preservation. Diabetic foot team implementation should be more widely available, as patients would benefit from quicker assessment and treatment.

There are, however, challenges in setting up a diabetic foot team, including low uptake of guidelines, limited podiatry services, lack of early patient identification, poor patient and physician education, and lack of databases.

Key Points:

- Prevention is the forgotten item.
- The most effective risk-stratification tools are sight and touch.
- Financial cost and quality of life cost are both important for treating diabetic foot complications.
- Shoes and prosthetics are crucial in preventing diabetic foot problems.
- Offloading and debridement are more important than dressings.
- Surgery has a significant place in the prevention and treatment of foot ulcers.
- There are many opportunities to leverage technology for better data-gathering and sharing.

- Future research directions will focus on improving the quality of care and detecting adverse developments.

ISSUES AND SOLUTIONS: TACKLING THE ISSUES OF SSIs

Reporter: Eliot To, DCh MCISc (Wound Healing) HBSc

Session speakers: Elaine Calvert, Karen Cross, Corrine McIsaac, Cesar Orellana, Lacey Phillips, Douglas Queen, Ranjani Somayaji

This session consisted of four subsessions. The first three focused on surgical site infections (SSIs) and the last focused on wound data collection, interpretation and application.

Lacey Phillips presented the Ontario Surgical Quality Improvement Network initiative. The initiative consists of a “community of practice that brings together best practice and quality improvement.” The goal of the network is to reduce post-operative SSIs. At the end of her presentation, there was an open call to be a part of the advisory committee for the development of SSI quality standards. Development of the standards will take place throughout 2020, with public consultation in fall 2020, and release in spring 2021.

Cesar Orellana highlighted common skin and soft tissue infections, including impetigo, ecthyma, erysipelas and cellulitis. He suggested that blood cultures are positive in less than 5% of

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cases of skin and soft tissue infections. He also presented the empiric oral and intravenous antibiotic treatments for uncomplicated skin and soft tissue infections and infections caused by MRSA (methicillin-resistant *Staphylococcus aureus*). One point to note is that if the lesion is purulent, incision and drainage (I&D) should be the goal.

Karen Cross opened her presentation by suggesting that “not everything is an infection.” When teaching residents, she uses the mnemonic “SEEP” (smell, erythema, exudate, pain) to help diagnose SSIs. She highlighted different pre-, intra- and post-operative strategies to decrease the risk of SSIs. These include the use of the Canadian Nutrition Screening Tool and optimization of nutrition, use of a surgical safety checklist to improve communication, use of antibiotics and normothermia, good glycemic control, peri-operative skin preparation and reduction of unnecessary operating room traffic. She employs

a monitoring app that allows her to monitor and respond to patient’s post-operative concerns remotely and efficiently.

Douglas Queen facilitated a panel discussion with Elaine Calvert, Corinne McIsaac and Ranjani Somayaji on the topic of reliable wound data and evidence in Canada. The discussion was split into “Current State of Play” and “Future State in Canada.” Corinne McIsaac suggested that the current state of data collection is “awful, but we’re making progress.” She said that data collection is difficult, as it is dependent on clinicians diagnosing and coding properly. Ranjani Somayaji stated that some of the challenges are “understanding of wounds and what we’re actually collecting.” There is a need, she said, for the development of a data dictionary that is standard among clinicians to unify language. The dictionary might include, among other things, definitions of different types of wounds. Another challenge she mentioned was “data consumerism”—how the wound data are interpreted and how to appraise the data. For next steps Elaine Calvert suggested the development of a Canadian wound registry, where clinicians can access data when they need it.

Key Points:

- Ontario Surgical Quality Improvement Network is an example of an initiative to decrease SSIs.
- There is a need for the development of an SSI quality standard in Ontario.
- Impetigo, ecthyma, erysipelas and cellulitis are examples of skin and soft tissue infections.
- *Streptococcus* is the most common causative agent of cellulitis and erysipelas.
- For purulent lesions, incision and drainage should be a goal.
- The more severe the infection, the more likely clinicians need to start IV rather than oral antibiotics.
- Multiple risk factors contribute to SSIs; prevention of SSIs should begin pre-op and continue post-op.
- There’s a need for common wound language or a “wound dictionary” for data collection.
- Data collection is important; data appraisal and interpretation are even more important.

THE DIABETIC FOOT: CODE BLUE

Reporter: Tim Murray, RN BScNP

Session speakers: Johnny Lau, Christine Murphy, Cesar Orellana, Giuseppe Papia, Scott Schumacher

Cristine Murphy outlined three habits that are critical to success: being proactive (rather than passive), beginning with the end in mind (a closure plan), and synergizing (working with the team).

Diabetic foot ulcers that previously would have been treated with amputation are now treatable by other means. Some of these treatments were demonstrated through case studies following the principles of using available therapies such as negative pressure wound therapy, debridement, revascularization, antibiotics, cultures, topical antimicrobials and cleansing. She also discussed ischemia and its treatment, and use of the WIfI (wound, ischemia, foot infection) classification system for rapid referral and to quantify risks of amputations.

Scott Schumacher stated that we can get to the point of catastrophe, but it is often easier to prevent complications early than to treat them at a critical point. Biomechanics is a vital consideration for wound healing and longevity.

Several case studies were discussed to examine removing rays, metatarsal abnormalities, fractures and overpronation. Treatment of transmetatarsal amputations were compared to removal of rays, illuminating that both have complications. The former may have fewer complications if the tarsals are kept longer. He also discussed varus (foot rotation) as a result of ray removal, as this can result in ulceration formation.

Cesar Orellana reviewed a complex case study of a limb-threatening diabetic foot infection. Amputation was offered by surgeons; however, negotiation took place and amputation was averted. Instead, they used debridement and NPWT to good effect.

He went on to list the statistics and negative outcomes for diabetic foot ulcers. The International Working Group on the Diabetic

Foot (IWGDF) classification was discussed, demonstrating the severity of infection. Factors were outlined that would recommend hospitalization for the patient. Also considered was an oral versus IV antibiotics regimen for diabetic foot infections, dependent on severity and local climate.

Giuseppe Papia emphasized working toward limb preservation at all costs by leveraging the toolbox of surgeries. He presented a case in which the patient wanted his leg preserved. A catheterization lab and arteriogram below the knee demonstrated poor perfusion. Surgeons managed to pass wire through the occlusion and collaterals, and angioplasty was performed. However, the patient still had significant pain symptoms. They decided to perform open surgery to revascularize. This resulted in improved pain relief, and after six weeks the wound showed visible signs of healing. Three months later the wound was closing.

Johnny Lau presented a case study of a 56-year-old male with non-insulin-dependent diabetes and foot pain, presenting with erythema and a hole in the medial aspect of the foot. The panel discussed the case to explore potential courses of treatment. Suggestions included checking circulation and toe pressures, vascular studies, tissue biopsy and blood cultures, debriding and antibiotics. Panel members also recommended clinicians order an x-ray to look for gas, and rule out Charcot foot. They discussed the need to improve swelling and erythema before correcting the bone dislocation with a surgical intervention. In a case like this, it is essential to look at long-term consequences; amputation would destabilize the foot. This patient received multiple pins and plates to successfully realign the foot.



Key Points:

- Be active rather than passive, have a closure plan in mind and work with the team.
- Infection is defined as invasion and multiplication of micro-organisms in host tissue plus host response, resulting in tissue destruction.
- Diabetic foot infections occur in open wounds (break in the protective cutaneous envelope).
- Limb ischemia increases the risk of infection of dermal ulcers and adversely affects outcomes.
- It's not a procedure, it's a project. Maintaining the patient's quality of life and dignity are hard work.
- No one solution fits all; ask others for opinions, and work as a team.

ISSUES AND SOLUTIONS: WOUND CARE IN INDIGENOUS POPULATIONS

Reporter: Eliot To, DCh MCISc (Wound Healing) HBSc

Session speakers: Lindsey Cosh, Chester Ho, Kimberly Lacey, Jane McSwiggan

Lindsey Cosh presented a holistic foot-care prevention model by the Indigenous Diabetes Health Circle (IDHC). The IDHC believes that "Indigenous people have tools, knowledge and ability to make health choices and live free of diabetes, now and in future generations." The focus of their foot-care program is to "support a continuum of foot care services based on education, screening, treatment, support and data collection, strengthen local community collaboration and provide foot care services to Indigenous people affected by or at risk of diabetes and its complications." The program follows the four components of the medicine wheel, and includes outreach and assessments, self-care and ongoing treatment, foot-care subsidies, access to home visits and educational and self-care resources. She concluded her session by giving examples of a few success stories from the foot-care program.

Chester Ho and Kimberly Lacey presented data and initiatives from Alberta Health Services (AHS) and Nova Scotia Health Authorities (NSHA), respectively. Chester Ho provided an update on standardization of pressure injury risk assessment

across Alberta and an overview of prevention strategies to come. Their strategic priorities are to "raise awareness of pressure injury prevention, obtain meaningful data, and increase in client voice." Kimberley Lacey presented data on NSHA pressure injury prevalence, which demonstrated a decrease from 14.2% in 2015 to 10% in 2018. She also showcased initiatives such as the annual "bed site" patient skin assessment, the provincial pressure injury policy, and the wound and pressure injury committees.

Jane McSwiggan highlighted different sources of isolation, such as barriers, distance and separations. Any of these factors could cause patients to be isolated. She also contrasted the "generalist" and the "specialist" health-care professional, stating the importance of blending the two. She suggested the importance of bridging the gap of urban and rural patient care by investing in learning and training, community engagement and workforce stability. Finally, she offered solutions to overcome barriers, including knowing one's professional scope, asking for help when needed, and ensuring that active learning and documentation can be accessed in both rural and urban settings.

Key Points:

- Building community and building trust is paramount to the IDHC's prevention-based foot-care program.
- Standardization of pressure injury assessment tools, wound data collection, educational and promotional videos, and patient experience interviews are all helpful tools for pressure injury prevention.
- There is a need for telehealth and outreach for skills development for rural practitioners.

WOUND JEOPARDY

Reporter: Susan Chandler, RN MCISCWH

Session speakers: Robyn Evans, Jolene Heil, Crystal McCallum, Guiseppe Papia, Douglas Queen

In this session, fiendishly worded questions were presented as a Jeopardy game to test wound

knowledge in an interactive and fun team setting. The questions were challenging and resulted in many “aha” moments and much laughter over both the content and the wordplay. The Tip Toes team won with a fantastic score of 14,202 points, 200 points ahead of their nearest rivals.

WHEN THINGS WENT WRONG: LESSONS FROM THE EXPERTS

Reporter: Eliot To, DCh MCISc (Wound Healing) HBSc

Session speakers: Barbara Bates-Jensen, Amani Oakley, Evelyn Williams

Amani Oakley, a lawyer, began the session by defining and explaining legal terminology, including *duty of care*, *non-medical duty of care*, *standard of care*, *causation* and *vicarious liability*. She then presented a case from 2006, in which a patient developed an infection post C-section. The take-away from the case was that standard of care was not met; however, causation was not established, and therefore the case was dismissed. She concluded her portion of the session by suggesting that “records can help you or destroy you.” She urged attendees to uphold standard of care and to document properly.

Barbara Bates-Jensen energized the attendees by beginning her portion with a rap. She suggested there are three issues when it comes to documentation: inaccuracies, inadequacies and inappropriate comments. Inaccuracies include wrong wound location, etiology or staging, sizes and the like. Failure to include important wound data, such as size, location, description, and failure to follow policy are examples of inadequate documentation. Inappropriate documentation includes use of personal or unprofessional views, such as providing comments like “patient refuses to understand” or “patient is very stubborn.”



Evelyn Williams concluded the session with a fictional case study. She provided practice and communication tips, including taking a thorough history, acknowledging to the patient and family that there is a problem, describing all interventions in place, providing a prognosis, explaining why a lesion might be difficult to heal, stating the risks and benefits for treatment, and even asking the patient or family to see the wound. 🩹

Key Points:

- Always deliver good care—care that meets the standard.
- Be conscientious, and take extra precautions when delivering care.
- Adhere to the Mother’s Standard of Care: treat patients as if you’re treating your own mother.
- Communicate between care providers and with patients and their families.
- Always document accurately, adequately and appropriately.

Stay tuned for more session summaries!

Additional summaries of the sessions presented at Wounds Canada’s fall 2019 conference will be published in the March 2020 issue of *Wound Care Canada*. Join our mailing list to ensure you don’t miss it—send an email to info@woundscanada.ca.

New Evidence that Changes the Game with Negative Pressure Wound Therapy

PICO Single-use Negative Pressure Wound Therapy vs. Traditional Negative Pressure Wound Therapy

This is a brief summary of a presentation at the annual fall conference of Wounds Canada, in Niagara Falls, ON, on October 5, 2019. It has been produced with the financial support of Smith & Nephew. The presenters were Kristi Huebner, MSN, RN, CW, and Robert S. Kirsner, MD, PhD.

Click the play button to the right to view a video of the complete presentation.



Use of sNPWT vs. Traditional NPWT

For diabetic foot ulcers (DFUs) and venous leg ulcers (VLUs), compression, offloading and debridement are standard of care, but up to a third of patients fail to heal within six months using this treatment. This is where advanced therapies come in. In the past, all negative pressure wound therapy (NPWT) has been seen as equal; no one system has been shown to be more effective than any other. In 2019, Robert Kirsner and colleagues conducted a study comparing the effectiveness of two existing health-care interventions for patients with DFUs and VLUs: traditional NPWT (tNPWT) and single-use NPWT (sNPWT).¹ One hundred and fifteen patients were treated for 12 weeks or until wound closure. Patients treated with sNPWT had improved outcomes in wound area, depth and volume reduction when compared to those treated with tNPWT. Furthermore, full closure was seen in 45% of wounds treated with sNPWT, versus 22% of wounds treated with tNPWT.

The researchers concluded that sNPWT had improved clinical effectiveness when compared with tNPWT. This was surprising, since all systems had previously been considered to have equal results. The researchers also noted that patients treated with the sNPWT reported greater satisfaction—measured by scores on willingness to use, comfort of use, impact on mobility, activity level and sleep—than those treated with tNPWT. These results support the use of sNPWT for the management of

VLUs and DFUs where NPWT is being considered. In these cases, Smith & Nephew's PICO 7 dressing should be the first choice.

PICO 7 Product Overview

Smith & Nephew's newest generation of single-use negative pressure wound therapy (sNPWT) has many benefits over other types of sNPWT, including

PICO 7's Four-layer Design Components

- **Silicone adhesive layer:** easy to apply and reposition; protects the wound environment and minimizes trauma and pain to periwound area on removal
- **AIRLOCK Technology layer:** distributes negative pressure equally across the wound, enables movement of fluid through the dressing
- **Super absorbent core:** locks in moisture from the wound
- **High moisture vapour transmission rate layer:** 80% of water vapour evaporates off the top of the dressing

Pump Design Features

- Transparent carry clip
- 25% quieter than previous version
- Better at dealing with air leaks
- Improved battery case with space to write therapy start date

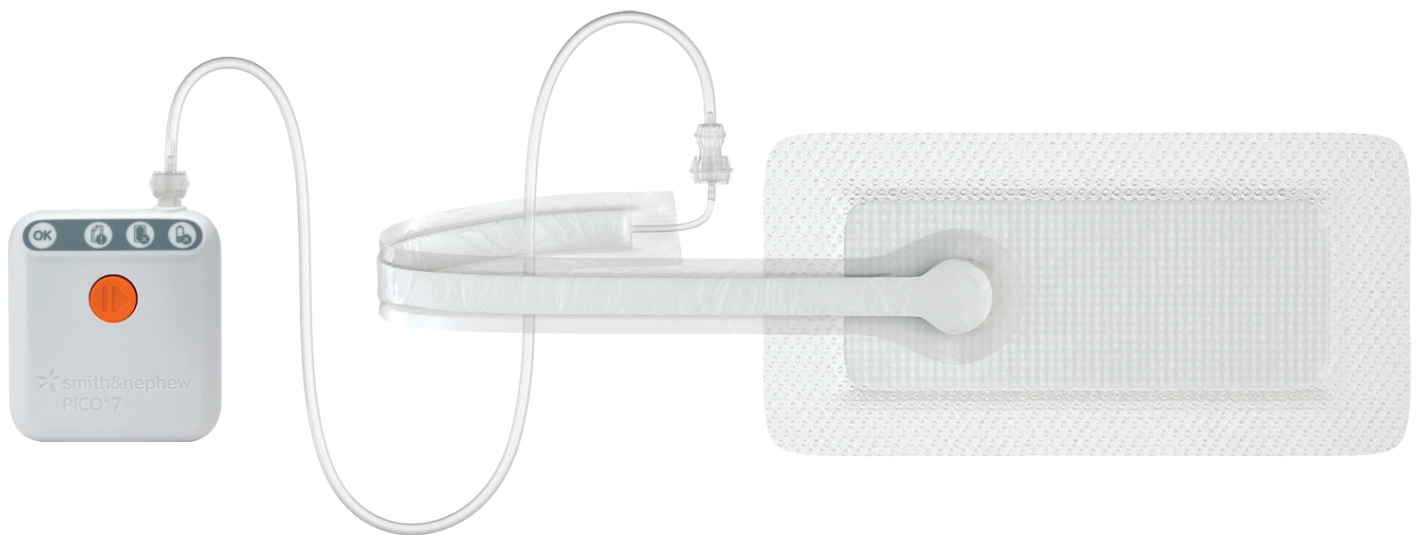


Figure 1: PICO 7 Design

improved patient experience, enhanced portability (Figure 1), simple application and operation, and clinical and cost effectiveness. The dressing has a multi-functional, four-layer design that delivers negative pressure and removes exudate through absorption and evaporation (see box on previous page).

Enhanced Results of sNPWT

There are three proposed mechanisms that likely lead to improved healing outcomes using sNPWT compared to tNPWT (Figure 2).

Wider Zone of NPWT Delivery

Single-use NPWT devices like the PICO 7 dressing do not require a filler such as film or gauze, enabling an area of negative pressure treatment that is dispersed over all tissue below the dressing, well beyond the wound margins, which results in compression and edema reduction.

Uninterrupted Healing

Lack of filler material means the dressing does not need to be changed for seven days (depending on exudate level). Using PICO 7, reduction in wound

area can be attributed to accelerated re-epithelization, whereas contraction is the main mechanisms in tNPWT dressings.

Portability and Simplicity

Small size and ease of use make this product more desirable for clinicians and patients alike. Enhanced portability and simplicity can support faster discharge from hospital to home care, greater mobility, improved sleep, increased ability to work and more active therapy hours, all of which may lead to improved adherence and thus clinical outcomes.

Experimental studies are underway to investigate these mechanisms of action and provide better information about the key reasons the PICO 7 dressing results in better clinical outcomes than tNPWT dressings.

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1. Kirsner R, Dove C, Reyzelman A, Vayser D, Jaimes H. A prospective, randomized, controlled clinical trial on the efficacy of a single-use negative pressure wound therapy system, compared to traditional negative pressure wound therapy in the treatment of chronic ulcers of the lower extremities. *Wound Rep Regen.* 2019;27(5):519–529.

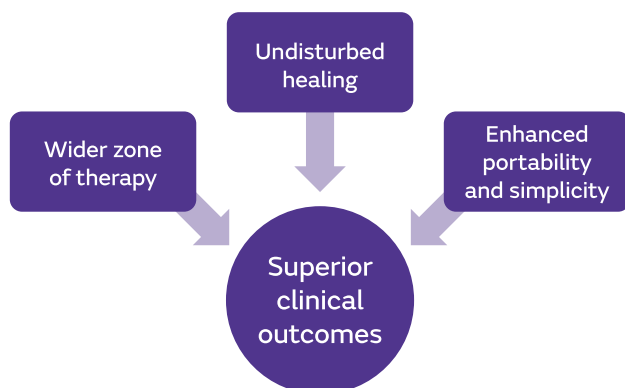


Figure 2: Mechanisms of PICO 7

Presentation Digest is a production of Wounds Canada (www.woundscanada.ca). The views expressed in this report are those of the presenters and do not necessarily reflect those of Wounds Canada, which has neither reviewed nor endorsed this report.

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HARM REDUCTION AND WOUND CARE BEST PRACTICE:

Promoting Skin and Wound Care for People Who Use Drugs in Consumption and Treatment Service Settings: A Nurse's Journey

By Erin Telegdi, RN BA BScN

Introduction

I am a registered nurse, and I am passionate about working with people who use drugs. I am grateful to work for a community of people who care deeply about the well-being of themselves and their communities and work tirelessly for positive change. I work at the Moss Park Consumption and Treatment Service (CTS), a service that provides a safe space for people to inject pre-obtained drugs and receive support services such as harm-reduction education, overdose response, and nursing and social service supports.

Harm Reduction

The philosophy of the Moss Park CTS is to reduce harm. According to the Harm Reduction Coalition, harm reduction is a “set of practical strategies and ideas aimed at reducing negative consequences associated with drug use. Harm Reduction is also a movement for social justice built on a belief in, and respect for, the rights of people who use drugs.”¹ The Canadian Nursing Association and

Canadian Association of Nurses in AIDS Care add that harm reduction is an “essential evidence-based approach for reducing the adverse health, social, and economic consequences of substances use without requiring abstinence.”²

A harm-reduction approach means that service providers meet people where they're at, without judging their drug use or requiring them to change. It is a philosophy centred on working to meet people's personally defined goals and needs, and understanding that systemic barriers, such as poverty, racism, criminalization and colonialism, cause much greater harm in people's lives than drugs themselves. It also acknowledges that people use drugs for a wide variety of reasons, and that for many, using drugs is a way to manage pain—ranging from physical to emotional to spiritual.

As a health-care professional, practising harm reduction also means acknowledging and resisting the ways in which the health-care system perpetuates stigmas against people who use



Patient Profile 1

M knocks on the door. It's a Monday. We don't usually provide care on Mondays, but M knows that there's always a nurse there doing admin work. She asks me if I can change a dressing. It is saturated, and she's obviously in discomfort. I invite her in and change the dressing. She had developed an abscess at a site where she injects fentanyl and had gone to a hospital emergency department the previous day to have it managed. She presented to me with a calcium alginate (saturated) covered with a transparent film dressing (Figure 1). The dressing was a perfect storm for occlusion and maceration. I asked her if they had prescribed antibiotics. She said yes, but she hadn't filled the script yet. She also told me that they'd given her IV antibiotics; the doctor had said, "I think we'd better give her a dose of antibiotics here—I suspect she's a flight risk."

M is in her thirties, and she is an injection drug user. Her drug of choice is street fentanyl. I have known her for almost a year. I know that she is a smart woman who previously worked in finance. She has an incredible sense of integrity and shows great kindness to the people in her community. She is a good person, and she cares about her health. She is an exemplary human, and I know this because I know her. But the Emerg doc doesn't know this. He doesn't know



Figure 1: First dressing change less than 24 hours after an I&D performed in a hospital emergency department for an abscess.

her. He just sees a drug user. And he treats her in the way that our society has allowed us to treat people who use drugs—that is, poorly and based on judgemental assumptions.

drugs (PWUDs) and creates barriers to accessing safe, competent and compassionate care. Finally, “nothing about us without us,” a foundational tenet of the harm-reduction movement, means prioritizing self-determination of PWUDs. As allies, it is our responsibility to support the issues and solutions that PWUDs identify as meaningful for themselves and their communities.

The Moss Park Overdose Prevention Site

In August 2017, as a nurse working at Casey House, a specialty hospital for people with HIV/AIDS, I heard the news that the Toronto Overdose Prevention Society (TOPS) and Toronto Harm Reduction Alliance (THRA) had opened an overdose prevent site (OPS) in Toronto’s Moss Park. They did this in response to growing overdose deaths in the City of Toronto—a trend that was being seen across Ontario, Canada and North America. In 2018, 1,475 Ontarians lost their lives to an opiate overdose.³ Through social media, I learned that there was a need for registered nurse (RN) volunteers to support the cause. The City of Toronto had stipulated that the unsanctioned OPS could operate as long as there was an RN present at all times. And so I volunteered. As a nurse, I’d never before dealt with an overdose, but I felt that if my credentials could support a just cause, it was something I needed to do. The team of seasoned harm-reduction workers and community of drug users were patient with me. They held my hand through my first overdose response. They nurtured me into this work. And I haven’t looked back.

Moss Park is a small municipal park in downtown Toronto, and it is the heart of an area experiencing rapid gentrification. There has always been drug use and poverty in this neighbourhood; at the time when the unsanctioned Moss Park OPS opened, the four corners of the park were the top four intersections in the entire City of Toronto visited by EMS for overdose calls. As housing prices have soared in neighbouring communities, “not in my backyard” attitudes have flourished. The area has seen an increase in discrimination and eco-

nomic violence against, and policing of, PWUDs. Unequivocally, drugs themselves are not the only danger of being a drug user. Increased criminalization and marginalization are real threats in the lives of PWUDs.

When the Moss Park OPS was an unsanctioned, volunteer-run operation, tents were set up each day at 4 p.m. and packed up again at 10 p.m. Each day, PWUDs accessed the service as a safe place to use drugs, free from the fear of accidental overdose, arrest or police harassment, and to access harm-reduction supplies, food and a space where all were welcome to come as they are and be treated with love and respect. It was a place where we stood in solidarity and validated the lives and experiences of PWUDs, and where together we fought for recognition of the value of their lives and their right to compassionate and appropriate services.

This was the first time I really understood what it means to be a good nurse. I was working for and with the people I served. The community made the rules and defined the work of the RNs. They told us what was helpful for us to do, and what was not. And we had to fall in line. The result amounted to nothing short of an epiphany for me. It gave me a deeper appreciation for my professional ethics, and for what it means to be part of a community and work together for a common cause.

As a result of the advocacy of TOPS, THRA, and the OPS volunteers in Moss Park, the province of Ontario expedited the opening of Supervised Consumption Services (SCS) and OPSs across the province. Under the previous provincial government, nine provincially funded SCS and OPS opened in Toronto, including the Moss Park OPS, which became a satellite of the South Riverdale Community Health Centre and which, with provincial funding, was able to move indoors. With the change to a Conservative government in 2018, two of the Toronto sites were defunded, but they continue to operate with private funding. The new premier had stated that all sites in the province would be shut down, but in the end, because of the enormity of the overdose crisis, the work of harm-reduction advocates, and the growing

Patient Profile 2

J is a man in his forties and a regular visitor to the Moss Park CTS as well as other CTSs. He is gracious and kind, giving reassuring feedback on my work, and asking how I'm doing and if I have anything special planned for my days off. He primarily injects fentanyl. He has difficulty accessing veins in his arms and primarily injects into his calves. He developed an abscess in his right calf, and his general practitioner (GP) performed an I&D. He was instructed by his GP to receive wound care at the Local Health Integration Network (LHIN) clinic. However, J has experienced multiple fentanyl overdoses in the past year, and it is important to him to access the CTS sites daily so that he can inject in a setting where he can receive assistance in the event of an overdose. Since he already accesses CTS services on a daily basis, it was more convenient for him to receive wound care in these settings. Initially the wound was healing well with povidone-iodine-soaked ribbon gauze, an absorbent second layer, and non-occlusive tape. After about a week, he was lost to our follow-up.

When he did return a couple of weeks later, he presented with an occlusive dressing on the wound and clear decompensation, with maceration, erythema, increased purulent exudate, foul smell, satellite skin breakdown and a fever. We accessed oral antibiotics for him through our nurse practitioner and resumed regular dressing changes. Again, however, he stopped coming regularly to Moss Park for some time.

When he did return, again he had an occlusive dressing with no topical antimicrobial, and I suspected *Pseudomonas* colonization (Figures 2 and 3). I focused on wound care education with J, explaining the factors to be considered for wound care and which dressings were appropriate and which weren't. I hoped that empowering him with this knowledge would help him advocate for himself when receiving wound care at other services. After many steps backward and forward over the past three months, J's wound is finally improving.



Figure 2: A wound that has become chronic post abscess I&D with multiples phases of improvement and decompensation.



Figure 3: A dressing that had been done at another CTS site, removed for dressing change at the Moss Park CTS.

1 Assess and/or Reassess
• Assess the patient, the wound (if applicable), as well as environmental and system challenges.
• Identify risk and causative factors that may impact skin integrity and wound healing.

5 Evaluate Outcomes
Goals Met:
• Ensure sustainability.
✓ Cycle is completed
Goals Partially Met or Not Met:
• reassess

4 Establish and Implement
• Establish and implement the plan of care.
• the environment and the patient
• the wound (if applicable)
• Ensure meaningful engagement of the team.
• Ensure consistent plan of care.

Provide Local

Cleansing/debridement:
• Remove debris and necrotic or indolent tissue, if healable.

Select appropriate



public support for harm reduction services, he backtracked and continued funding for most sites, though expansion of such programs was capped.

Moss Park Today

Today the Moss Park OPS—now called a Consumption and Treatment Service (CTS) under the new provincial government—operates Tuesdays through Sundays from 12 to 6 p.m. Many of the staff are people who were integral volunteers for the Moss Park OPS when it was an unsanctioned site in the park. We are a team of community health workers, overdose prevention workers and registered nurses. Most workers at the site have lived or living experience of drug use. As of March 31, 2019, we were averaging 88 visits to our injection service per day, and in our first year of operation reversed 617 overdoses. In addition to saving lives, we support access to needed social services and provide recreational activities and health services. We are able to facilitate referrals to occupational therapy, physical therapy, social work and chiropody; however,

these services are not provided on-site.

The Moss Park CTS is unique because of its drop-in style. While our primary service is to supervise injections and reverse overdoses, we are also a place where people come to spend time with friends, engage in community and advocacy work, write letters to loved ones in jail, and create art—among many other things.

One notable observation about our site is that approximately 40% of our service users self-identify as Indigenous. (We collect minimal personal or demographic information, so we do not have exact numbers, but we have collected point-in-time data.) As a result, we work to

Chart Audit July 2018 – September 2019

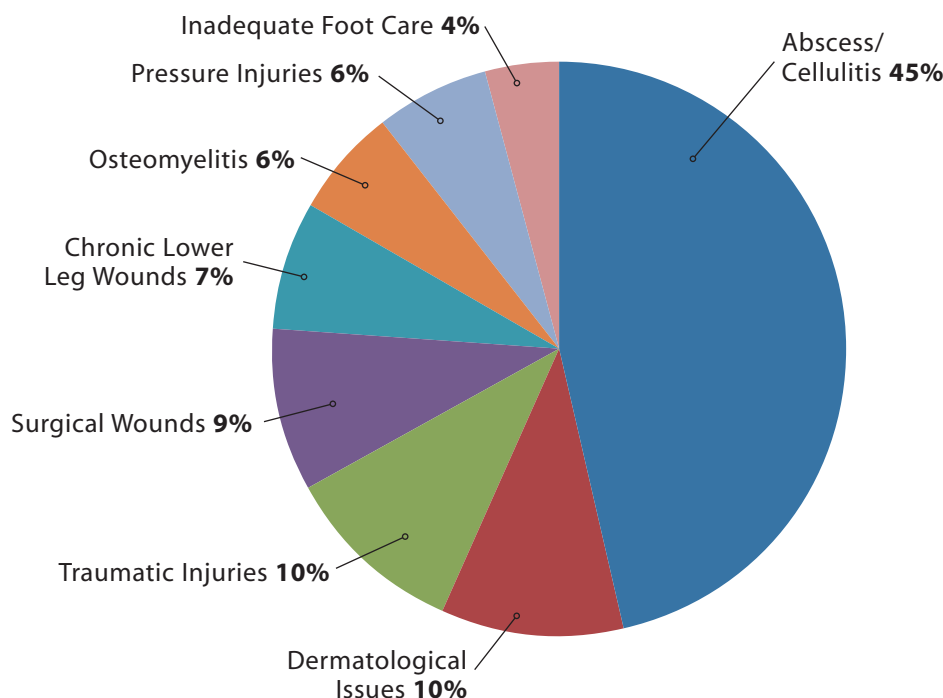
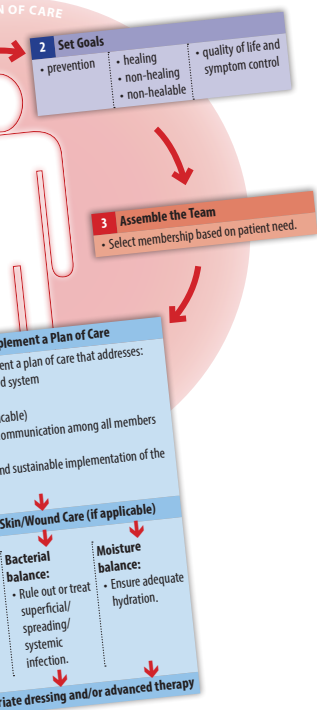


Figure 4: Types of Skin and Wound Issues at Moss Park CTS



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prioritize Indigenous voices and respond to the needs of Indigenous service users. We are proud to have the first Indigenous Sharing Circle in a supervised consumption setting in Ontario, led by Indigenous harm-reduction activist Les Harper. We acknowledge that Indigenous people have been disproportionately affected by the overdose crisis, which is compounded by ongoing colonization; we also acknowledge that an important part of harm reduction is reducing the harms of colonialism.

Wound Care at Moss Park

The nurses at Moss Park provide a wide variety of primary and emergent health-care services. Some of those who access our service are well connected to other health-care services, but many are not, and these people generally access walk-in clinics, emergency departments or other CTS sites when they have acute health issues. The need for acute and long-standing wound care is significant.

A chart review of Moss Park nursing entries from July 2018 to September 2019 indicated that 50% of encounters involved skin and wound care issues. Not infrequently, I spend the majority of the day in a cramped, accessible washroom, caring for persons with wounds—dressing change after dressing change—and assessing the need for topical antimicrobials and systemic antibiotics.

Of the total nursing encounters involving skin and wound care, 45% were related to abscesses and cellulitis. In this group, 59% involved abscesses and cellulitis at a recent injection site and 41% at sites where the client does not inject. Abscesses and cellulitis are common complications of injection drug use, but also of living

in poverty, not having access to basic hygiene, staying in cramped and unhygienic shelters, and the immunosuppression that comes with food insecurity, lack of sleep and lack of stable housing. The remaining encounters were related to dermatological issues, including pest- or parasite-related rashes, picking and self-harm, exposure to extreme weather, and drug-related rash and hives (10%), traumatic injuries, both accidental and secondary to violence (10%), surgical wounds (9%), non-healing lower leg wounds (7%), suspected or confirmed osteomyelitis (6%), pressure injuries (6%) and foot care (4%) (see Figure 4).

Working at Moss Park, I have seen, on multiple occasions, people avoiding hospital care because they have, over and over again, experienced violence and discrimination at the hands of the health-care system. Unfortunately folks must balance the potential harms of not getting an acute health-care issue treated with the potential harms they may experience at the hands of health-care providers. The stigma of being labelled a “drug user” by the health-care system is huge. It can mean harassment and violence from hospital security, mistrust and lack of compassion from health-care providers, and under-treatment of pain. The stakes are high. I have often seen folks leave hospital against medical advice because they can no longer tolerate how they are being treated. They end up back in the community with exposed surgical hardware, osteomyelitis and unmanaged infected wounds. Many of the wounds we see have become chronic because of inappropriate hospital discharge planning for unhoused people, lack of communication across health-care sectors and settings, and lack of access to stigma-free, consistent and informed wound care.

The Wound Prevention and Management Cycle

Establishing a trusting and safe relationship with service users is the first priority in supporting people with skin and wound issues at the Moss Park CTS. A benefit to accessing health services in a CTS is that people do not need to hide or

explain their substance use: first and foremost, it is a drug-user friendly environment. This eliminates one huge barrier PWUDs face when trying to access health care.

Once trust is established, our focus is to collaborate with service users to determine a plan of care. For this work, we use the guiding principles of the Wound Prevention and Management Cycle.⁴

Initially we work to identify the cause of the wound or skin issue and consider each individual patient's concerns for treating the cause. This includes engaging in conversations about safer injection techniques that can decrease the occurrence of injection-related infections, such as swabbing the skin before injecting and minimizing syringe re-use. We also consider where people inject. Some, over time, have increasing difficulty accessing veins, and are only able to inject in their hands, wrists or legs, all of which can increase the risk of injection-related complications. We support people in finding new veins to use so that other veins have an opportunity to heal.

There may also be a need to consider how a wound dressing or treatment protocol could impact the patient's ability to access veins for injecting.

Other patient concerns addressed include their access to shower facilities and ability to attend to personal care needs, and ways to be responsive to peoples' schedules so that dressing changes can be done consistently. Through assessment of the person's total health, environmental and system challenges, and identifying risk and causative factors, we are able to establish goals and work on a plan of care in collaboration with service users, as well as their support networks and other members of the CTS team.

Determining appropriate local wound care is the next challenge. We consider debridement, inflammation and infection, moisture balance and edge effect.

Many service users access nursing services for dressing changes at various locations such as other CTSs, emergency departments and other community health services. It has become evident to me that knowledge of appropriate local wound care varies greatly across settings. I have seen

occlusive transparent film dressings on infected wounds, leading to maceration and skin breakdown; inappropriate use of oral antibiotics where a topical antimicrobial is indicated; and a discomfort among nurses to engage in debridement in order to address biofilms. This inconsistency in practice speaks to a lack of access to wound care best-practice knowledge. The gap in wound care knowledge and cross-site communication can lead to negative outcomes in wound healing.

Implications

Consumption and Treatment Services are becoming an integral part of health-care systems. They provide cost-effective, life-saving services, and connect people with the care they need for holistic health and well-being.

It is my hope that as we become more established, we can stay true to our harm-reduction roots and maintain the primacy of knowledge and experience of PWUDs. From a nursing perspective, I hope we will be able to increase our capacity to meet the wound- and skin-health needs of the people we serve. My experience has overwhelmingly shown that there is a great need for wound care services in CTS, and that we must meet the challenge of integrating wound care best practices. At Moss Park we have tried to promote improved skin and wound care through safer injection workshops for service providers and service users, personalized counselling around safer injection and how to minimize the risk of injection-related complications and wound care education within and across services.

In the coming year I plan to promote improving data collection on skin- and wound-related issues in CTS, work collaboratively across CTS, primary and tertiary care services to eliminate systemic barriers to accessing care and support the development of communities of practice in CTS that promote wound care best practice. In CTS, our service users are vibrant, smart, kind people who care deeply about their own health and the health of their communities. They deserve nothing but the very best care. 📌

Patient Profile 3

E is a gregarious and creative woman in her fifties who was once a professional dancer. She has been homeless for several years. When I met her, she was mostly sleeping outdoors but sometimes accessed shelter services during extreme weather. She developed an epidural abscess that required surgical intervention. In the intensive care unit, she received pain medication commensurate with her opiate tolerance, which kept her comfortable. Once she was out of the intensive care unit, her pain medications were decreased to the point that she began experiencing excruciating withdrawal symptoms. She left hospital against medical advice with partial paraplegia and in a wheelchair. She had developed a sacral pressure injury (PI) while in hospital, which had progressed to stage 3. Back in the community she was unable to offload, as she's in a wheelchair—which had not been fitted for her—24 hours a day, was still sleeping rough, and had urinary incontinence related to the spinal abscess. Without a home, it was difficult for her to find spaces to change her briefs, and her skin was exposed constantly to moisture, exacerbating the original PI. She developed two additional PIs, one to her right ischial tuberosity and another to her right heel (Figure 5). Over that winter, our team spent a considerable amount of time supporting E with changing her briefs, finding new, dry clothes, keeping her PIs clean, and monitoring for signs of systemic infection, which we knew was a threat.

Through cross-agency collaboration, E was



Figure 5: Pressure injury to the heel of a 54-year-old woman experiencing new paraplegia and homelessness, and in a wheelchair not professionally fitted.

eventually able to access a transitional housing apartment. She is now able to offload, and has access to bathroom facilities for brief changes, with which she is independent. She still has two of the three PIs, but she is able to keep them clean and dry, and now has home-care coming to her apartment for regular wound care. Our next goal is to connect her with OT so she can be fitted for an appropriate chair. This task will be much easier now that she has stable housing and consistent case management support.

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Wound Infection and Biofilm: A Hurdle for Healing

This is a brief summary of a presentation at the annual fall conference of Wounds Canada, in Niagara Falls, ON, on October 5, 2019. It has been produced with the financial support of Coloplast. The presenters were Paulo Da Rosa, RN, BScN, MClScWH, WOCC(C), and Lina Martins, RN, BScN, MScN, WOCC(C).



Wound Infection

More than 6.5 million people are suffering from non- or slow-healing wounds, 90% of which will develop biofilm. All open wounds are contaminated with micro-organisms, which activate the host immune response. Wound infection occurs when micro-organisms move deeper into the wound tissue and proliferate, leading to a local or systemic immune response. The host's immune system and the species of micro-organisms (quantity and virulence) will influence the development of wound infection.¹

Signs of infection are also signs of biofilm. As biofilms are not visible to the naked eye, signs of infection such as delayed wound healing, increased exudate and slough, increased inflammatory response, erythema, malodour and high bacterial load should be closely monitored.

Silver in Wound Care

Silver has been used as an antimicrobial for many years. It has a broad antimicrobial efficacy and is widely used in antimicrobial wound dressings. Furthermore, silver has efficacy against biofilms (shown *in vitro*),³ and there is abundant clinical evidence supporting the use of silver in wound care.³⁻⁵

Silver works by targeting multiple sites in bacteria. Silver ions bind to the bacterial cell wall, blocking transport of substances in and out of the cell. They are also transported into the bacterial cell, where they block the respiratory system to destroy energy

production. Finally, silver ions interact with DNA and inhibit bacterial cell division, stopping replication. Through these mechanisms, the cell membrane bursts, and the bacterium is destroyed.⁶ Due to the multiple targets, antimicrobial resistance to silver is rare.

In Vitro and Clinical Evidence for Biatain® Silicone Ag and Biatain® Ag

Not all silver dressings are the same; they vary in dressing material, silver release profile, absorption capacity and conformability to the wound bed. *In vitro* studies have shown that Biatain® Silicone Ag and Biatain® Ag kill mature biofilms (*S. aureus* and *P. aeruginosa*) *in vitro* and are effective against a broad spectrum of bacteria and fungi for up to seven days.⁷

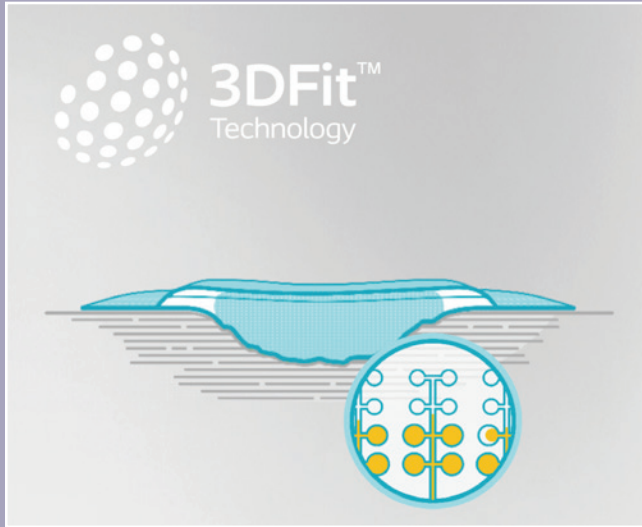
Biatain® Silicone Ag and Biatain® Ag have been shown to promote healing of non-healing, infected wounds in a number of clinical studies.⁸⁻¹⁰ Biatain®

About Biofilms

Biofilms are microscopic structures not visible to the eye. Non-healing wounds are an ideal environment for biofilms. Biofilms can grow on the wound surface as well as in deep tissue and are difficult to kill. Recent studies indicate that 60–100% of non-healing wounds contain biofilms.² Biofilms keep the wound in an inflammatory state, which prevents wound healing.

3DFit™ Technology

3DFit™ Technology, used in Biatain® Ag dressings, has a microcapillary structure that allows vertical exudate absorption and conforms to the wound bed (up to a depth of 2 cm) to promote optimal healing conditions.



Silicone Ag and Biatain® Ag with 3DFit™ Technology (see box) show positive clinical results in infected, non-healing wounds.⁸⁻¹⁰ These dressings have been shown to kill 99.99% of mature biofilms (formed in 24 hours) and to prevent biofilm formation (shown *in vitro*).¹¹

Conclusions

It can be assumed that all infected wounds contain biofilms. Signs of infection are also the signs of biofilms, which are impossible to see with the naked eye. Biatain® Ag has been shown to promote healing of infected, non-healing wounds in a number of clinical studies. Clinical studies have demonstrated that Biatain® Silicone Ag and Biatain® Ag reduce mature biofilms and prevent biofilm formation *in vitro*.

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Malnutrition and Wound Healing

By Ellen Mackay, RD MSc CDE

Wound healing is an anabolic process that requires a steady supply of nutrients and fluid to the wound bed. Malnutrition interrupts this healing process and is associated with delayed wound healing, increased risk of infection, prolonged hospital stays and poor health outcomes.¹ Malnutrition is also a culprit in the development of wounds, especially pressure injuries.² Not only does malnutrition have a negative impact on the health and quality of life of patients, but also it increases health-care costs and rates of hospital re-admission.³

In the general population, malnutrition is rare; however, the risk increases with advancing age and for those living in poverty or with cognitive decline. The presence of a wound increases nutrient needs and may be associated with poor intake or inflammation, which may result in a decline in nutritional status and an increased risk for developing malnutrition. A hospital experience itself may have a negative impact on nutritional status due to the need to be fasting for therapeutic tests or procedures, interrupted meal times, pain, illness and poor appetite.⁴ Prompt identification of individuals with malnutrition or at risk of malnutrition can offset patient suffering, long hospital stays and wound chronicity.

Prevalence of Malnutrition

Until recently, malnutrition was largely unrecognized and overlooked. In a Canadian prospective cohort study, adult malnutrition was identified in a startling 45% of those admitted to hospitals over a three-year observation period.⁵ Similar rates of malnutrition have been observed around the world.⁶

*Validated screening tools are simple
to use and can be administered by
any member of the team.*

Initially established in 2009 to review the current prevalence of malnutrition in hospitals, the Canadian Malnutrition Task Force (CMTF) was formed with the mission to develop and implement strategies to prevent, detect and treat malnutrition. As part of this, Canadian Malnutrition Awareness Week is now celebrated in Canada annually in the fall. With continued efforts it will become standard procedure to screen for malnutrition upon admission to hospitals in Canada and help draw attention to the impact of malnutrition on health outcomes.



Malnutrition: Hard to Define

Defining malnutrition is challenging, as it is hard to pinpoint the boundaries between normal and abnormal nutrition. There are limited serologic tests to definitively diagnose malnutrition. In general, malnutrition is defined as a reduced nutrition intake, relative to need, that results in negative changes to body composition and function. Increased nutrition needs are seen in patients with malabsorption diseases or changes to nutrient utilization, or whose wounds have high exudate. The presence of chronic disease and varying degrees of inflammation can also impact malnutrition.

In 2012, to help with consistency of care, the Academy of Nutrition and Dietetics and the American Society for Parenteral and Enteral Nutrition (ASPEN) put forward a standard diagnosis. The consensus that was adopted indicates malnutrition is usually diagnosed when two or more of the following nutrition characteristics are identified:⁸

- Insufficient energy intake
- Weight loss
- Loss of muscle mass
- Loss of subcutaneous fat
- Fluid accumulation (that may mask weight loss)
- Diminished functional status (as measured by hand-grip strength)

Malnutrition Defined

Malnutrition includes both the deficiency or excess (or imbalance) of energy, protein and other nutrients. In clinical practice, the focus is undernutrition, or inadequate intake of energy, protein and nutrients. Undernutrition affects body tissues, functional ability and overall health. In hospitalized patients, undernutrition is often complicated by acute conditions (e.g., a trauma), infections and diseases that cause inflammation.⁷

Weight Loss Puts Patients at Risk

Weight loss is often the initial symptom of malnutrition, as the body breaks down fat and protein stores to feed the wound. A patient exhibiting unintentional weight loss greater than 5% over a three- to six-month period should be flagged as being at high risk of malnutrition.^{9,2} While there is often a strong focus on patients with a low body mass index (BMI < 20), there is a growing appreciation that malnutrition affects overweight (BMI > 25) and underweight individuals alike.¹⁰ Clinicians should be aware that overweight status does

To identify malnutrition risk, ask the following:

- Have you lost weight in the last six months without trying?
- Have you been eating less than usual for more than a week?

If the patient answers “Yes” to both ... they are at nutrition risk.

(Canadian Malnutrition Screening Tool)



not always imply good nutrition; absolute body weight may not be as important as the degree of weight loss.

Nutrition Screening Tools

Early identification of those at risk for, or with, overt malnutrition is of the utmost importance. Several validated screening tools have streamlined screening for malnutrition in adults (see Table 1). Choice of screening tools will vary depending on the patient population screened: whether inpatient, living in a residential facility, or community dwelling. (Screening for malnutrition in children uses different tools that are beyond the scope of this article.) Screening tools all have

overlapping features; most attempt to determine recent weight loss and poor nutritional intake. Most require the clinician to have access to the patient’s recent weight and height measurements, but often these are missing from the patient’s chart. Validated screening tools to help identify patients with, or at risk for, malnutrition are simple to use and can be administered by any member of the team in clinics or upon admission to hospital. Rescreening annually or semi-annually is recommended, especially when a patient’s medical condition changes or if a wound is not healing as predicted.¹¹ To date, only the Mini Nutrition Assessment (MNA) screening tool has been validated for patients with pressure injuries.¹¹

Subscales of the Braden Risk and Skin Assessment, and the Pressure Injury Prevention Points and Nutrition Intervention (National Pressure Ulcer Advisory Panel, now known as the National Pressure Injury Advisory Panel [NPIAP]) can also help to delineate those at risk for wounds



Table 1: Nutrition Screening Tools¹²

Screening Tool	Population
Mini Nutrition Assessment SF (MNA®)	• Identifies adults 65 years or older, living in long-term care or community dwelling, who are malnourished or at risk for malnutrition
Malnutrition Universal Screening Tool (MUST)	• Identifies adults who are underweight and at risk of malnutrition (acute, long-term care or community)
Malnutrition Screening Tool (MST)	• Identifies adult patients in acute or ambulatory care who are at risk of malnutrition
Canadian Nutrition Screening Tool (CNST)	• Identifies adult patients in acute care at risk of malnutrition
Short Nutritional Assessment Questionnaire (SNAQ)	• Identifies adults who are underweight and at risk of malnutrition (acute)
Nutri-eSCREEN (online)	• Used for self-screening for older adults



as a result of nutritional complications; however, they do not specifically screen for malnutrition.

Nutritional Assessment

Once a patient is identified as being at risk, the nutrition care team or a registered dietitian should conduct a comprehensive nutritional assessment in order to build a nutrition care plan.

Health-care providers can use Subjective Global Assessment or inpatient assessment tools to help identify type and severity of the under-nutrition, impact on body composition, loss of functional capacity and barriers to consuming nutritional requirements.

Intervention

Screening and assessment alone are not enough. Intervention is the next step, and nutritional rehabilitation often requires a team approach. Together the team and patient can develop an individualized care plan to help with weight restoration and improve nutritional status to enhance wound healing. To correct malnutrition, the health-care team must determine the root cause of malnutrition and intervene by following evidence-based guidelines.

Dietitians are a valuable asset to help with the

nutritional assessment and creation of a care plan. Such a plan may specify protein, energy and fluid requirements along with additional micronutrient needs. These elements will support the restoration of lean mass and the nutrients to support wound healing and improve skin integrity. To meet nutrition requirements, often the dietitian will work to liberalize the diet by removing any unnecessary dietary restriction and optimize oral intake through nutrient-dense foods. When foods do not meet nutrition needs, then clinicians may recommend enhanced foods, oral nutrition supplements, or multivitamin and mineral supplements. Enteral or parenteral nutrition support may be indicated in some cases.

Supporting Good Nutrition: A Team Approach

All members of the team can address good nutrition for wound recovery and prevention of malnutrition through each step of the patient journey. The following are ways to support optimal nutrition intake:

- **Protect mealtimes.** Limit mealtime interruption due to medical tests or procedures.
- **Assist with meals and snacks.** Open containers, place food and drinks within reach, cut up food if necessary.
- **Offer energy-dense snacks with and between meals.** Liberalize diet restrictions to enhance the variety of foods offered.¹³
- **Offer medication with oral liquid supplement, if appropriate.** Small amounts of liquid

Possible Causes of Malnutrition

- Dysphagia
- Poor appetite
- Poor dentition
- Pain
- Depression or worry
- Chronic disease (e.g., chronic obstructive pulmonary disease, cancer)
- Nausea, vomiting
- Gastrointestinal disorders that prevent absorption (diarrhea, pancreatic insufficiency, inflammatory bowel disease)





supplements spread through the day may be better tolerated than larger amounts.

- **Clarify why the patient is not eating well, and seek to resolve any issues.** Address dentition or swallowing safety, adjust texture of food, add a thickening agent, offer familiar foods, review allergies or intolerances and food preferences.
- **Educate patients on their role in nutrition and healing.** Consider food as medicine, encourage meal completion.
- **Engage the family and encourage them to be a part of the process.** They can provide familiar meals or snacks, visit at mealtimes to help with meal completion, and socialize while eating together.
- **Consider medical support.** Some medications may address early satiety, bloating, constipation or diarrhea. Discuss this with the physician or pharmacist.
- **Consider ongoing nutrition follow-up in discharge planning.** Refer the patient to the outpatient or home-care dietitian for monitoring.

Conclusion

Identifying and treating malnutrition has the potential to support wound healing, prevent pressure injuries and improve the overall health of our patients. Nutrition intervention is a low risk, cost-effective strategy to reduce health-care expenses. Ongoing rescreening and follow-up of at-risk patients provide an opportunity for health providers to intervene early and prevent malnutrition. 📌

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WCI Spotlight

Best Practice Approach to Skin Health and Wound Management: Knowledge and Skills (A100NWS)

The Best Practice Approach to Skin Health and Wound Management: Knowledge and Skills program is one of the most popular of all Wounds Canada Institute (WCI) offerings. It consists of one full-day, on-site skills lab followed sometime later by one interactive webinar that allow students to learn, practise and implement new knowledge and skills about best practices relevant to wound assessment and local wound care.

During the skills lab component, under the guidance of expert faculty, students review and practise the practical skills involved in the assessment of wounds using images and validated tools, wound cleans-

ing, conservative sharp wound debridement, identification of anatomic skin and tissue structures using a pig's foot, and the use of tools to differentiate between local, spreading and systemic wound infection. As well, students conduct a dressing discovery exercise where they categorize supplied dressings and learn about their form and function. The skills lab wraps up with a series of case studies in which students are provided wound images and histories and are asked to describe their approach to the assessment and

management of the patient and wound in question.

Following the skills lab, students are expected to seek out mentorship opportunities in their workplaces to hone their

What Programs Are Right for You?

To find out more about the Best Practice Approach to Skin Health and Wound Management: Knowledge and Skills program and other WCI programs, visit the WCI website at www.woundscanadainstitute.ca.





skills and attain proficiency.

Clarissa from Toronto, ON, wrote that after taking this program, she had, "... improved critical thinking skills in terms of healing for wounds."

A wrap-up webinar, held sometime after the skills lab is completed, invites students to discuss with faculty the challenges

they faced and strategies they used in implementing the acquired knowledge and skills in their everyday practice, and, for some, at an organizational level. On how she would change her practice after completing this program, Megan from Winnipeg, MB, wrote that she would "reinforce the idea of using a

validated assessment tool [and would] ensure [that she] is using a multidisciplinary approach to wound care."

Brenda from London, ON, when asked what advice she would give to another health-care professional considering taking this program, wrote, "Take it—everything was great." 📌

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- Access to our organizational updates that outline how your membership supports our mission
- The opportunity to become involved as a regional representative and/or board member
- Networking opportunities with other regional, national and international health professionals
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Now We Can!

#wipeoutwounds

The Wounds Canada Foundation is a charity created by Wounds Canada to support Canadians who have wounds or are at risk for developing wounds. The foundation was officially launched at Wounds Canada's fall conference in Niagara

raising our 2019 total to almost \$8,000!

As a registered charity, the Wounds Canada Foundation's primary goal is raising money for patient education programs, awareness campaigns, scholarships for frontline health-care



Falls with the "Now We Can" campaign, which included loonie collection jars and T-shirts for sale featuring the campaign title and hashtag #wipeoutwounds. This kick-off campaign aimed to inspire health-care professionals, patients, family, care partners and those affected by wounds to help fund key education programs and awareness campaigns. The "Now We Can" campaign was a great success,

providers and research to advance wound prevention and care. Its aim is to make a difference to those affected by a wound—to change lives or save lives. No one should experience a preventable wound or the hardship of a wound complication.

Your donation, however big or small, will help make a difference.

Please donate today at www.woundscanadafoundation.ca.



Wound Sleuth

By Sultan Khoja, MBBS and Carol Ott, MD FRCPC

Patient with a Painful Leg Ulcer

DR, a 74-year-old female, presented to Women's College Hospital Wound Care Clinic with a painful right lateral malleolar ulcer measuring 3 x 2.7 cm that had been present for nine months (see Figure 1). Other concurrent medical conditions included polycythemia rubra vera, glaucoma and hypothyroidism. Her medications were acetazolamide, levothyroxine, hydromorphone, nortriptyline, acetaminophen, acetylsalicylic acid, calcium, vitamin D, zinc, vitamin E and omega 3. She had been on hydroxyurea in the past for her polycythemia rubra vera, but that had been discontinued five months prior, as this was thought either to have caused the wound or to be contributing to its non-healing. The discontinuation of the hydroxyurea did not lead to any improvement in the status of the wound, however. Her main complaint was the pain she experienced from this wound and how it was affecting her functioning. She moved from her home to a retirement home because she required extra help with activities of daily living

and instrumental activities of daily living. Due to the pain, she suffered from reduced ability to ambulate, bathe, shop, house-keep, prepare meals and leave the home.

On examination, she had some mild varicosities and very mild edema in both legs. There was some dead tissue in the wound, which she refused to have debrided due to fear of worsening pain. We found strong pedal pulses bilaterally, and noted no physical findings of arterial disease in her feet.

Question for the Reader

Q What would be the differential diagnosis of the underlying cause of this wound?

A Etiologies of the wound to be considered include:

- Venous stasis
- Hydroxyurea-induced ulcer¹
- Arterial/angiosomal issue
- Infection
- Pyoderma gangrenosum

Prior to presenting at our clinic, the patient underwent the following investigations:

- Bone scan: suggestive of pos-



Figure 1: Lateral right leg wound that patient initially presented with

sible low-grade osteomyelitis and peroneal tenosynovitis

- Ankle-brachial indexes: found to be 1.0 in both legs
- Biopsy: showed increased neutrophils and bacteria, suggestive of infection

After the patient's presentation at the clinic, we conducted further investigations. A vascular surgeon saw her and determined that her clinical exam

and ultrasound findings indicated it was unlikely she had an angiosomal issue, so no computed tomography angiogram (CTA) was recommended.

Over time, she developed a new lesion on the medial aspect of the right leg and some superficial wounds on the left medial malleolus (see Figure 2).

Several times the wounds appeared to be infected, and she was treated with a variety of antibiotics. She grew methicillin-resistant *Staphylococcus aureus*, *Stenotrophomonas maltophilia* and *Serratia marcescens*. Eighteen months after presenting, the preliminary culture came back showing heavy growth of gram-positive bacilli. The final result would be low growth of other commensal bacteria that were not bacilli and therefore not being grown on the medium. After discussion with the microbiologist at the lab, we determined the best approach would be to biopsy the wound and have it tested for atypical bacteria (i.e., mycobacteria). A deep biopsy culture was sent for atypical bacteria and after several weeks returned showing *Mycobacterium chelonae*.

The Infecting Bacteria

Mycobacterium chelonae is non-tuberculous, nonmotile, non-spore-forming, rapidly growing mycobacteria (RGM).² It was first described in 1903 by Freidmann, after he isolated the organism from a sea turtle.³ *M. chelonae*, along with *M. fortuitum* and *M.*

abscessus, are the most common clinically significant RGMs. *M. chelonae* is characterized by its rapid growth in cultures, which usually take seven days to form mature colonies. The RGM group makes up approximately half of the validated mycobacterial species.^{4,5}

These organisms are found in abundance in nature. More specifically, they have been isolated from tap, fresh and sea water sources, and also found in soil, dust and reptiles.^{5,6} More concerning, they have been isolated from in-hospital environments, contaminated equipment and hospital tap water.⁷ They are well known for their ability to withstand extreme environments and temperatures, and are resistant to chlorine water treatment and some industrial-grade detergents commonly used in hospitals and households.^{8,9}

Clinically, *M. chelonae* is known to infect immunocompromised patients in which the infection is reported to have a wide range of manifestations, including skin and soft tissue infection, lymphadenitis, osteomyelitis, prosthetic valve endocarditis, keratitis, line infection, pulmonary disease or disseminated infection.¹⁰⁻¹²

Immunocompetent patients are also susceptible to infection by these organisms; however, the infection tends to be limited to skin and soft tissue.¹³

Skin and soft tissue infection by *M. chelonae* has been reported to be associated with tattooing using contaminat-



Figure 2: Medial right leg wound that developed in time

ed ink, or after surgeries in which non-sterile techniques or contaminated materials were used.¹³⁻¹⁵ There are a wide variety of cutaneous manifestations of *M. chelonae* infection depending on the patient's immune status. Many descriptions of this infection have been reported in the literature, including single or multiple subcutaneous erythematous violaceous papules and nodules, pustular lesions, hemorrhagic crusts, cellulitis, ulcers, draining sinuses with discharge, and abscesses.^{10,13,14,16} All of these lesions can be either painless or painful; however, larger lesions tend to be associated with pain.¹⁰ Lower and upper extremities are the most common site of manifestation, although face and scalp lesions have been reported.¹⁰ A history of trauma is not specific to *M. chelonae* cutaneous



Figure 3: Right lateral leg wound after deep debridement



Figure 4: Wound with allograft applied



Figure 5: Wound on lateral right leg showing signs of healing

infection, as many reported cases have denied a history of trauma.¹⁰ Most reported cases share the fact that these lesions are chronic in nature and tend to be mistaken for other more common causes of skin lesions, like common bacterial infections and vasculitis that fail to improve with their respective treatments.^{10,13,14,16} In immunocompromised patients, the infection tends to have a more disseminated picture, presenting with five or more lesions.¹⁰ Clinicians can establish a diagnosis after isolating the organisms either from cultured discharge or skin biopsy.^{10,16}

RGMs, including *M. chelonae*, are well known to be strongly resistant to standard antimycobacterial therapy.¹⁷ The suggested initial therapy for *M. chelonae* cutaneous infections includes a combination of

clarithromycin with either tobramycin, imipenem or amikacin, along with wound care.^{16,17} *M. chelonae* has been shown to have an excellent susceptibility to single antimicrobial agents like clarithromycin,¹⁸ but due to emerging resistance to single agents, the use of a minimum of two agents is recommended.^{19,20} Therapy should be guided using *in vitro* susceptibility patterns for the isolated organism.¹⁶ The duration of antimicrobial therapy hasn't been established yet. The literature suggests treatment for a minimum of one to four months and continued until all lesions are healed with no recurrence.^{10,13,14,16,20} Surgical excision and cryotherapy should be considered for resistant lesions if amenable.^{16,20}

Treatment

Following the diagnosis of *M. chelonae* infection, we performed a surgical debridement of the infected area (see Figure 3). A specialist in infectious disease at the Toronto General Hospital elected to treat the patient with six months of combination antibiotic treatment of clarithromycin and ciprofloxacin. The wound on the lateral malleolus was now 3 x 3 cm, and the wound on the medial aspect of the leg was 1 x 1 cm. Because the lateral malleolus wound was so deep with all layers of the dermis removed, a dehydrated human amnion/chorion membrane allograft was applied weekly (see Figure 4). The wounds began healing well (see Figure 5). Shortly after the six months of antibiotics were completed, the wounds healed over and were in the final stage



Figures 6a and 6b: Lateral and medial wounds in the remodeling stage of healing

of healing: the remodelling stage (see Figures 6a and 6b). Pain decreased to a more tolerable level though the patient felt more comfortable continuing with a bandage.

Discussion

In this particular case, it was confusing as to why the wounds kept increasing in size and number despite good wound care, adequate circulation and reasonable nutrition. We believed this wound should be a healable wound. We had no reason to believe it should be a non-healable wound.

Treating infections and targeting the easily grown bacteria did not help, and the wounds continued to worsen. This patient suffered from polycythemia rubra vera, which is a myeloproliferative neoplasm causing the bone marrow to produce too many red blood cells and sometimes too many white blood cells and platelets. The medication she was on prior to presentation, hydroxyurea, could have led to the initiation or non-healing of the wounds; however, the wounds were progressing even after this treatment was stopped.

The patient continued to have issues with pain control and decreasing function despite attempts to correct these. She was afraid of any debridement in case it might add to the pain, but finally agreed once *M. chelonae* was suspected.

This case shows that we should consider using aids

Assess/Reassess ▶ Set Goals ▶ Assemble Team ▶ Establish and Implement ▶ Evaluate

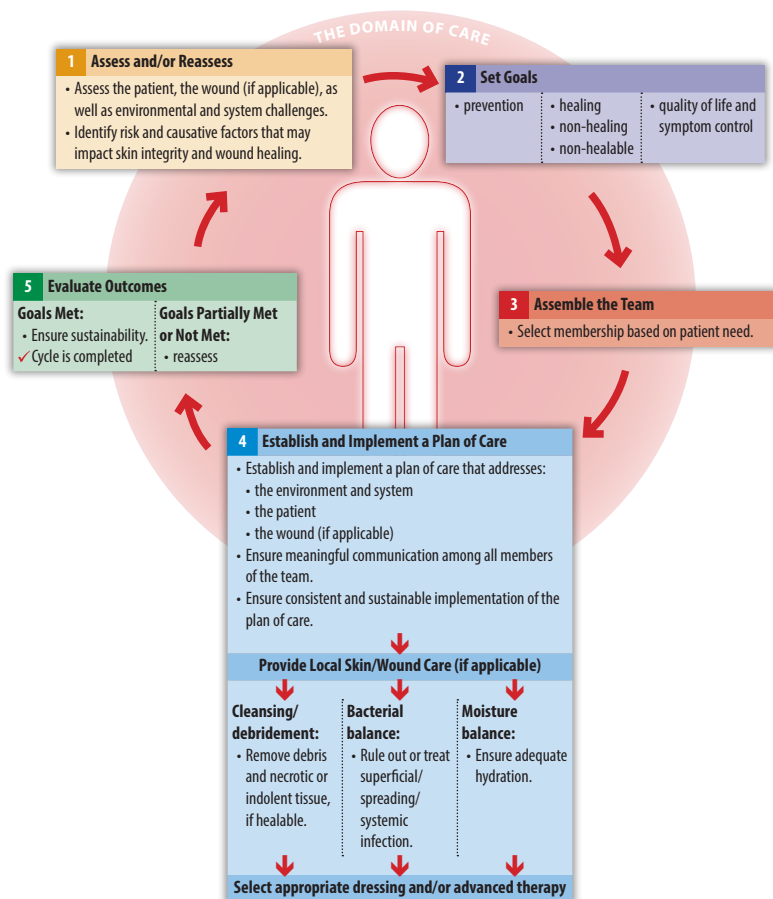


Figure 7: The Wound Prevention and Management Cycle

Key Points

- ✓ We did not know the etiology of the wound but were able to find the cause for its not healing (infection).
- ✓ It is important not to label a wound as “non-healable” just because it is not healing as expected. Further investigation may be needed.
- ✓ When treating an older adult, consider how the wound may be affecting their daily functioning.

such as The Wound Prevention and Management Cycle (see Figure 7). When a wound is not healing as expected, we need to reassess what we are doing and readdress our goals. For DR, we still believed healing was possible. Our main clue was the preliminary swab culture result that showed we had gram positive bacilli that we could not grow within the ordinary culture growth times. We needed to add more members of our team—including the lab microbiologist and infectious disease specialist. We had to open our minds to what other etiologies might exist. In particular, the case of DR demonstrates the need to look at deep cultures for slower growing organisms such as mycobacteria and fungi. 🦠

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Patient-Administered E-Stim for Wound Healing:

Effective, Easy—and with Excellent Outcomes in Calgary Integrated Home Care

By Kelly D. Sair, BScPt MCISc (WH)

Alberta Health Services (AHS) has a patient-first strategy that brings evidence-based treatment to a patient in their own home and empowers the patient and their chosen care partner or family member to be directly involved in their care. The care plan takes into account cultural traditions, personal preferences, family situations and lifestyles.

Recently AHS's Calgary Integrated Home Care (IHC) Community Consult and Treat Team (CAT Team) implemented a successful patient-administered in-home electrical stimulation program (E-Stim Program) for the treatment of pressure injuries, diabetic ulcers and other chronic wounds.

About the Program

The E-Stim Program was implemented after identifying the unmet needs of home-care patients and the challenges


and obstacles in delivering patient-centred care. The Community CAT Team found that patients who had limited mobility, challenges with transportation and inability to afford parking tended to not attend clinic appointments and not to adhere to recommendations from the team due to these factors that were out of their control. Healable wounds were therefore deemed not healable due to the patient not being able to access care outside their home.

The Community CAT Team initially conducted trials of e-stim treatments in the patient's home; however, they quickly identified that these in-home treatments, though beneficial to patients, were not sustainable due to the length of time it took one home-care interventionist to complete each treatment. The patient's quality of life also suffered, as the treatment schedule was based

on the availability of home-care staff and not the personal circumstances and schedule of the patient. Patients voiced concerns about depression, lack of control over their care and poor quality of life before giving up on the in-home e-stim treatments.

In collaboration with IHC Calgary Zone CAT Team management, the patient, the patient's care partner or family, physicians and home-care interventionists, the team decided to conduct a trial of the E-Stim Program by encouraging cognitively intact and competent patients to be responsible for providing their own in-home e-stim treatments.

Prior to implementation with a particular patient, the E-Stim Program ensures that the multi-disciplinary team identifies and addresses the cause of the wound, and that the patient is competent in applying the e-stim treatments or will be



supported in doing so by a care partner or family member.

The E-Stim Program loans one of nine e-stim machines to the patient at no cost, demonstrates application of the e-stim and provides written education on the use of the machine to both patient and a chosen care partner or family member, and then monitors wound healing biweekly. The teams provides the patient with a home-care contact phone number to

answer questions or problem-solve remotely. Education on the application of e-stim includes positioning of the patient, hand hygiene, wound cleansing, a no-touch technique in wound packing and electrode attachment, removal of electrodes post-treatment and application of the dressing. Patients are encouraged to complete treatments three to five times weekly at their convenience within their pre-

scribed schedule. The E-Stim Program allows the patient to make independent decisions on who provides the treatment, when the treatment is done, the location of the treatment, and how many days per week the treatment can be accommodated in their schedule. The patient is also provided with links to a best practice guideline that matches their wound type, and to the national e-stim community website (Estim4wounds.ca).

About E-Stim

E-stim is level 1a evidence-based therapy that is used to assist in the closure of an open wound.¹ The therapy is delivered using a handheld, battery-operated, specialized electrical stimulation device that delivers high-voltage pulsed current (HVPC) to the wound, imparting a net charge to the tissues.² This net charge stimulates the cells directly involved in the wound-healing cycle to move the wound through the phases of healing. Simple, inexpensive supplies such as gauze, saline and gel are used in the wound with an electrode placed over top. A second electrode, called the dispersive electrode, is placed away from the wound to complete the circuit.³ Each treatment is one hour, repeated three to five times per week until the wound has closed.

The contraindications for this treatment are few but include malignancy, unknown wound etiology, pregnancy, untreated osteomyelitis, severe arterial insufficiency, cardiac pacemaker, blood clots, and treatment in areas near the eyes, genitalia and over the anterior neck or carotid sinus.⁴

E-stim produces a pins-and-needles-like sensation and is generally well tolerated. It is used to accelerate healing in wounds that are delayed in healing due to underlying comorbidities. Stimulation with e-stim increases the circulation to the wound, delivering oxygen and nutrients that are needed to facilitate wound healing. E-stim will activate macrophage activity and phagocytosis, resulting in a decrease in bacteria and bioburden in the wound.³ With a decrease in bacteria and necrotic tissue in the wound, deposition of granulation tissue and epithelialization can occur. E-stim's few side effects include skin irritation under the electrode, pain or muscle spasm if the intensity is set without sufficient patient feedback, and wound infection or deterioration if proper hand washing and aseptic techniques are not used when applying the electrode and dressings to the wound.⁴



A Case Study

An example of the E-Stim Program in action involves a recent home-care patient with paraplegia living in rural Alberta. He was seen at the Sheldon M. Chumir Wound Clinic in June 2019 with a pressure or shear injury to his right ischial tuberosity (IT). The wound had been present for over a year despite the patient having had daily home care for dressing changes. A home-care occupational therapist had seen him for assessment of transfers and wheelchair seating with resolution of all possible causes of the wound. Unfortunately wound healing did not progress as expected. The team implemented the E-Stim Program for this patient, and he was started on e-stim in the home, with rural home-care monitoring the wound and reporting back to the Community CAT Team in IHC Calgary Zone every two weeks. The patient's wife assisted in applying the e-stim treatments in the evening after she arrived home from work. The patient's right IT wound healed within four weeks and has stayed healed for the past three months. The patient reports that the e-stim treatments in the home were easy to do and that he was thrilled the wound healed so quickly.

Benefits of Patient-Administered E-Stim

To the system: Implementation of the E-Stim Program in the home has many benefits. The e-stim machines are inexpensive and can be used on multiple patients. The IHC Calgary Zone's cost in supplies in providing the treatment is \$13 for two electrodes that can be used for the duration of the treatment. The antibacterial properties of e-stim allow for the use of simple wound dressings only. No advanced dressings, such as silver, are ever needed or used

when treating with e-stim. There is also a significant decrease in the number of required home-care visits, thus freeing up home-care staff to see other patients.

To patients and their families and care partners: The cost to the patient is minimal, as they only need to supply gauze, wound gel and saline. Patients report an increase in quality of life because they do not have to attend wound clinic appointments and wait for home-care nurses to visit. Patients report that they like having the independence to choose when

to do their treatments and wound care. Finally, patients with IT and sacral pressure injuries report that the e-stim provides the added benefit of a decrease in wound exudate, requiring fewer dressing, clothing and cushion-cover changes.

To the community: A complete policy and procedure guideline for the E-Stim Program and e-stim process was developed and shared with assisted-living and long-term facilities, Workers' Compensation Board patients, and the Spinal Cord Injury Clinic in acute care in Calgary, AB. Through collab-

oration, the Community CAT Team was able to share resources with these organizations to meet the needs of their patients. The e-stim implementation process outlined in the document empowers staff to show compassion for patients living with wounds in the community, and promotes accountability in assessing the cause of a wound and being fiscally responsible in providing wound treatments. The E-Stim Program that has been developed supports and respects patient-driven goals in a home environment. It is

now reaching patients in assisted-living facilities in Calgary and patients living in rural Alberta.

The IHC Calgary Zone Community CAT Team's vision for the E-Stim Program is that of the AHS: "Healthy Albertans. Healthy Communities, together," which mirrors the AHS's mission statement: "To provide a patient-focused, quality health system that is accessible and sustainable for all Albertans." 🇨🇦

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Wound CARE Instrument 2.0:

The Next Step in Promoting National Standards for Health-related Education

By Sue Rosenthal, BA MA, Kimberly LeBlanc, PhD RN NSWOC WOCC(C) and Christine Murphy, PhD RN NSWOC WOCC(C)

In relation to wound prevention and care, Canadian health-care professionals (individuals and care settings) seeking professional development currently have a variety of health-care-related educational options to choose from. These options may include programs at accredited educational institutions, online courses, hands-on workshops, conferences, corporate-sponsored wound care education and online opportunities, such as webcasts and webinars. Because of the variation in depth, content and delivery of these educational offerings, it can be challenging to determine which programs meet acceptable quality standards and, therefore, which ones are worth the investment in terms of time and resources. (Note: Throughout this document, the term *program* will be used to refer to educational options of any type.)

To address this challenge, in 2010, representatives of Wounds Canada (formerly the Canadian Association of Wound Care) and Nurses Specialized in Wound, Ostomy and Continence Canada (NSWOCC) (formerly the Canadian Association for Enterostomal Therapy) created the Wound CARE Instrument,¹ a framework to assess the quality of existing educational programs as well as a tool to use to develop new programs.

The tool seeks to answer the question:

“How can we be assured that health-related knowledge developed and delivered at an educational event or in a program meets the highest standards?”¹



Who should use it?

- Developers creating educational courses, programs, workshops, live events, conferences and webcasts
- Individuals making professional development decisions for themselves
- Administrators allocating resources to personnel training and education
- Program implementers/administrators investigating whether they have gaps in their environment that would hinder or elements in their environment that would facilitate learning and practice change
- Policy makers seeking/making recommendations regarding training and education
- Purchasing departments making decisions about value-added incentives for product purchase



Like many aspects of health care, the Wound Care Instrument is an evolving tool. The initial tool was developed 10 years ago. Since that time pedagogy has evolved and educational programs are now frequently based on external reviews, core competencies, standards of practice, a means for standardized testing and inclusion of a means for ensuring transition of knowledge into practice. The following components will be included into an updated Wound Care Instrument. This will include re-validation of the tool.

Component	Rationale
External Program Review	A program review is a rigorous, systematic, objective, impartial, expert-based evaluation and self-evaluation of an educational program to ensure that standards are being met and that the competencies are addressed.
Program Based on Core Competencies	Core competencies provide educational programs with a blueprint to ensure that graduates of the program develop the knowledge, skills, judgment and attributes required to work at the level promised by the educational program. Core competencies are developed based on extensive literature searches and peer review.
Standards of Practice	Practice standards not only define, but also set out professional expectations for health-care practitioners. Standards of care should inform the programs' core competencies. ²
Certification Examination	Certification exams provide an impartial, third-party attestation that an individual has the knowledge and proficiency in a given profession.
Clinical Preceptorship and Knowledge Translation	Clinical preceptorship provides a means to ensure that students have clinical mentorship, which assists students in applying knowledge into practice. Preceptorship provides educational programs to monitor the student's ability to apply standards of practice in clinical situations and demonstrate they have gained the knowledge, skills, judgment and attributes required to work at the level promised by the educational program.



The Wound CARE Instrument was “designed to provide a set of standards to support health-care providers, wound management leaders, educators, purchasing managers, administrators, organizations and health authorities to undertake a comprehensive, evidence-informed appraisal process” to assess the strengths and weaknesses before registering for, developing, adopting or adapting an educational program.¹

Since that time, the instrument has seen limited use in evaluating education, despite the rigour with which it was developed and the important needs it was designed to address.

Because of the value of the tool to clinicians, health decision makers and education developers, Wounds Canada and NSWOCC are collaborating once again with an aim to raise the profile of the Wound CARE Instrument through the following strategies:

- Changing the name of the instrument to better reflect its purpose
- Providing a quick reference guide (QRG) under the new name to make it easier to use
- Rating our respective educational programs

using the parameters outlined in the instrument

- Encouraging widespread adoption of the instrument for those making decisions about registering for, developing or purchasing health-related education

1. Changing the Name

We propose changing the name to the “Health Education Development and Evaluation Tool” (HEDET) to reduce confusion.

The main reason for the name change from the “Wound CARE Instrument” is to better reflect the purpose of the tool. Most readers are unaware that the “CARE” in the name refers to “Collaborative Appraisal & Recommendations for Education” and may assume the tool is designed to evaluate the clinical practice of wound “care” rather than education programs. As well, the word “Wound” in the name suggests it is appropriate only for wound-related education, when, in fact, the parameters in the tool are suitable for evaluating any type of health-related education.

Note: It is only the name that will change; the

tool itself will remain as it was developed and validated, until the next round of revisions (see box, page 51).

2. Quick Reference Guide

The original Wound CARE Instrument document contains a great deal of information covering the rationale behind its development. This is a necessary part of any development process, but it does nothing to ensure widespread adoption. Therefore, the next logical step to promote the tool is to create and disseminate a more user-friendly version that users can understand quickly and use effectively. For those seeking the reassurance of the research and rationale behind the tool, the **original long-form document** is easily accessible.¹ The essential elements of the instrument in the form of a quick reference guide (QRG) are presented on page 55.

The quick reference version contains notes to facilitate its use for different audiences—program developer, purchaser/implementer—as well as a compact “scorecard” that reviewers can use when communicating the results of program evaluations.

3. Rating Our Programs

Both Wounds Canada and NSWOCC have been creating and delivering high-quality health-related educational programs for decades. As part of our efforts to promote the use of HEDET, we will begin to evaluate all our existing educational programs using this tool and publish the results. In addition, all future programs will have their evaluations publicized simultaneous to their launch using a scorecard specifically designed for this purpose (see Figure 1). The intention is to provide an example of how programs should be created, evaluated and sustained using a single set of standards that others can easily use and adopt. The scorecard will demonstrate the merits and deficits of any educational program in its five phases of development/implementation.

4. Encouraging Widespread Adoption

Wounds Canada and NSWOCC are making a collaborative public declaration that this tool should become the standard by which all health-related education is rated. We propose:

- Organizations offering education adopt the tool to develop, evaluate and re-evaluate their programs; they are encouraged to publicize the scores for each program so decision-makers can use the information (see Figure 1)

“The parameters in the tool are suitable for evaluating any type of health-related education.”

- Individuals making decisions about which educational programs to access for themselves can ensure their options meet the standards outlined in the tool (see Figures 1 and 2)
- Individuals making decisions about which educational programs to access for their staff or colleagues can ensure their options meet the standards outlined in the tool as well as determine whether their environment will support staff education effectively (see Figures 1 and 2)

Conclusion

There have been legitimate concerns about the lack of common standards employed to evaluate educational programs that have potential impacts on patient outcomes and financial and human resources. Although a set of standards has indeed been available since 2010, in the form of the Wound CARE Instrument, it has not been adopted widely. Therefore, Wounds Canada and NSWOCC have renamed the instrument the Health Education Development and Evaluation Tool (HEDET) and provided a quick-reference ver-

Figure 1: Health Education Development and Evaluation Tool Scorecard for Developers*

PHASE:	STANDARDS FOR PRELIMINARY PLANNING	SCORE
1	Standards for Preliminary Planning	/9
2	Standards for Preparation and Development	/8
3	Standards for Implementation	/6
4	Standards for Evaluation and Outcomes	/3
5	Standards for Sustainability and Post-implementation Planning	/2
Total Score:		/28

Note: We encourage all educational program developers to use the tool to guide the development of their programs and to publicize the score to all potential users.

Figure 2: Health Education Development and Evaluation Tool Scorecard for Purchasers/Implementers*

PHASE:	STANDARDS FOR PRELIMINARY PLANNING	SCORE
1	Standards for Preliminary Planning	/9
2	Standards for Preparation and Development	/8
3	Standards for Implementation	/6
4	Standards for Evaluation and Outcomes	/3
5	Standards for Sustainability and Post-implementation Planning	/4
Total Score:		/30

Note: We encourage all purchasers/implementers to use the tool to:

- evaluate programs based on their Health Education Assessment Tool score
- determine if the parameters required for successful implementation of educational programs have been met in their own environments

* It is important to note that the two scorecards vary slightly. Phase 5 of the developer scorecard discounts two parameters—"5.2: Preceptorship and mentoring opportunities are in place" and "5.3: Continuous measurement of integration of learning into practice"—as these are primarily applicable to the end user and generally cannot be covered by developers except where the developers and implementers are within the same organization.

sion to encourage use. The two groups strongly believe that now is the time for the standards in the tool to be applied whenever and wherever health-related education decisions are being made. Successful completion and implementation of the four steps outlined above—instrument name change, QRG development plus application and promotion of the tool—will advance this standard method of evaluating health-related education programs in Canada. 📌

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1. Canadian Association of Wound Care and Canadian Association for Enterostomal Therapy. The Wound CARE Instrument: Collaborative Appraisal and Recommendations for Education. Available at: www.woundscanada.ca/health-care-professional/resources-health-care-pros/library/183-resources-industry-partner/24-cw-instrument and <https://nswoc.ca/wp-content/uploads/2017/08/caet-wound-care-instrument.pdf>.
2. Canadian Nurses Association Specialty Core Competencies. Available at: www.cna-aiic.ca/en/certification/exam-preparation/exam-competencies-and-blue-prints.

The Health Education Development and Evaluation Tool (HEDET)

To achieve optimal outcomes, the HEDET should be applied using an interprofessional collaborative method. It is recommended that a minimum of three stakeholders, with diverse responsibilities within the organization or institution appraise the educational event or program under review. Interprofessional collaboration for the appraisal and recommendations should involve representation from administration, purchasing (if required), and a clinical expert with experience in wound management and/or wound management education.

Step 1: Select an educational event, initiative and/or program to be appraised and identify appropriate stakeholders to be involved.

Step 2: Stakeholders review the proposed or existing educational event or program, considering preliminary planning, preparation and development, implementation, evaluation and sustainability.

Step 3: Each stakeholder appraises the event or program independently using the

Health Education Development and Evaluation Tool Scorecard.

Step 4: Stakeholders meet to discuss their independent reviews, achieve consensus and decide to endorse, adopt, adapt, purchase or reject the education or program.

Step 5: A “consensus” scorecard is then signed by each of the stakeholders and dated to document the appraisal and final recommendation. This record should be kept on file.

Every statement has two choices: Score 1 if the standard has been substantially met; Score 0 if the standard has not been substantially met. Tally the sub-scores and comment on areas of strength or weakness to help you determine whether to endorse, adopt, adapt, purchase or reject the program.

Note: Any conflict of interest needs to be addressed, and the person(s) or company delivering or developing the program should not be one of the appraisers. However, they can use the Wound CARE Instrument (HEDET) as a guide for the comprehensive development of their education initiative or program or for feedback on existing programs.

PHASE 1:	STANDARDS FOR PRELIMINARY PLANNING	SCORE
1.1	Organizational support obtained for: 1.1.1 A mandate for intended change related to new learning 1.1.2 Policy and procedure change based on new evidence 1.1.3 Alignment with organizational goals 1.1.4 Advocating and ensuring fair business practice	
1.2	Environmental assessment conducted	
1.3	Practice-focused needs assessment conducted	
1.4	Strategic partnerships developed to ensure system-wide stakeholders are involved in change	
1.5	Fiscal and human resources have been considered and are in place	
1.6	On-site, contracted and/or external agency educators are trained in adult learning principles and evidence-informed curriculum	
Comments:		
Sub-score:		/9

PHASE 2:	STANDARDS FOR PREPARATION AND DEVELOPMENT	SCORE
2.1	Curriculum has been developed through interprofessional collaboration	
2.2	Curriculum is: 2.2.1 Evidence informed 2.2.2 Based on adult learning principles 2.2.3 Reflective of knowledge, skill, attitude and behaviour learning 2.2.4 Current with revision plan in place	
2.3	Curriculum is unbiased, generic and non-promotional	
2.4	Physical environment is optimized to support adult learning	
2.5	Promotion and publicity plans are in place	
Comments:		
Sub-score:		/8

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Comments:		
Sub-score:		/9

PHASE 2:	STANDARDS FOR PREPARATION AND DEVELOPMENT	SCORE
2.1	Curriculum has been developed through interprofessional collaboration	
2.2	Curriculum is: 2.2.1 Evidence informed 2.2.2 Based on adult learning principles 2.2.3 Reflective of knowledge, skill, attitude and behaviour learning 2.2.4 Current with revision plan in place	
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2.4	Physical environment is optimized to support adult learning	
2.5	Promotion and publicity plans are in place	
Comments:		
Sub-score:		/8

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