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La revue officielle de l'Association canadienne du soin des plaies



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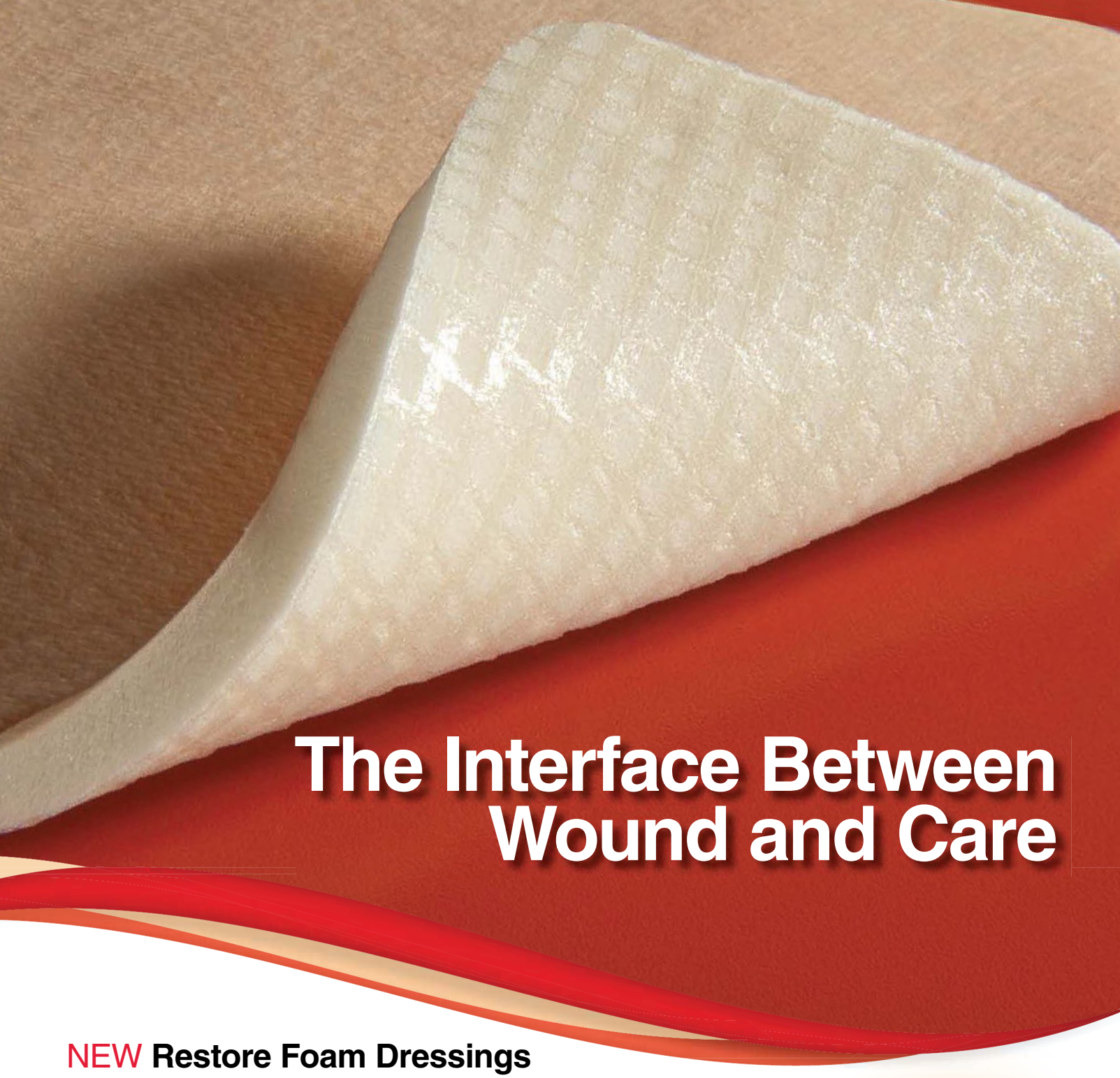

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Features / Reportages

Join us for the 17th Annual CAWC Conference!

The Canadian Association of Wound Care is pleased to report that plans for the 17th annual Wound Care Conference, to be held in Ottawa from November 3 to 6, 2011, are well underway. This year's conference theme is *Surgical Wounds, Burns and Infections*.

Speakers will be local, national and international wound care experts. Sessions that participants can look forward to include:

- International consensus on skin tears
- Challenges in wound care research
- Best practice: Open surgical wounds
- Diagnostic challenges: Inflammation vs. infection
- Complex wounds in the emergency room
- Research on negative pressure therapy
- Allied health—a hidden gem

For further information, visit www.cawc.net.
For registration information, please call 416-485-2292.

The Canadian Association of Wound Care is a non-profit organization of health-care professionals, industry participants, patients and caregivers dedicated to the advancement of wound care in Canada.

The CAWC was formed in 1995, and its official meeting is the CAWC annual conference held in Canada each year. The association's efforts are focused on five key areas: public policy, clinical practice, education, research and connecting with the international wound-care community. The CAWC works to significantly improve patient care, clinical outcomes and the professional satisfaction of wound-care clinicians.

L'Association canadienne du soin des plaies est un organisme sans but lucratif regroupant des professionnels de la santé, des gens de l'industrie, des patients et des membres du personnel soignant fortement intéressés à l'avancement des connaissances pour le soin des plaies au Canada.

Fondée en 1995, l'ACSP organise, chaque année, au Canada, un congrès qui lui tient lieu de réunion officielle, le Congrès annuel de l'ACSP. L'association consacre ses efforts dans cinq domaines particuliers : les politiques gouvernementales, la pratique clinique, la formation, la recherche et la création de liens avec la communauté internationale directement impliquée dans le soin des plaies. L'Association canadienne du soin des plaies vise une amélioration significative du soin donné au patient, des résultats cliniques et de la satisfaction professionnelle des spécialistes en soin des plaies.

Register for the CAWC Institute of Wound Management and Prevention

The CAWC Institute of Wound Management and Prevention is offering educational sessions across Canada throughout 2011. For further information regarding dates and venues, and to register, please visit **www.cawc.net**.

CAWC Executive Director Appointed

The Canadian Association of Wound Care Board of Directors is pleased to announce the appointment of Peggy Ahearn as executive director. Peggy has a wealth of experience in wound care. She was involved in the establishment of the CAWC; as President of The Medicine Group, a continuing healthcare education agency, from 1988 to 2005, she worked closely with the CAWC under that auspices. More recently, Peggy was the project team leader for the World Union of Wound Healing Societies 2008 Congress, which was held in Toronto.

The CAWC Has Moved

The Canadian Association of Wound Care has moved to the following location: 642 King Street West, Suite 200, Toronto, Ontario M5V 1M7. The Association's telephone number (416-485-2292) and fax number (416-485-2291), and staff email addresses remain the same.

Join us for the 17th Annual CAWC Conference!

The Canadian Association of Wound Care is pleased to report that plans for the 17th Annual Wound Care Conference, to be held in Ottawa from November 3 to 6, 2011, are well underway. This year's conference theme is Surgical Wounds, Burns and Infections.

Once again, the conference will feature 4 educational streams: basic clinical, advanced clinical, research, and public policy and education.

The conference co-chairs are Mariam Botros, a chiropodist with Women's College Hospital in Toronto, and Marc Despatis, a vascular surgeon with Centre hospitalier universitaire de Sherbrooke. This year's conference, they note, "promises interesting and informative sessions for all healthcare professionals. The focus will be on the challenges of wound care at all levels—in the ER and hospital, in long-term care and in the community."

With respect to surgical wounds, sessions will focus on such issues as open surgical wounds and pilonidal sinus wounds. The burn management theme will feature sessions addressing pediatric and adult burns, as well as burn management in the rehabilitation setting. As always, says Botros, "the conference will explore the transdisciplinary role of wound care, while ensuring that the patient's point of view is addressed."

Speakers will be local, national and international wound care experts. Sessions that participants can look forward to include:

- international consensus on skin tears
- challenges in wound care research
- best practice: Open surgical wounds
- diagnostic challenges: Inflammation vs. infection
- complex wounds in the emergency room
- research on negative pressure therapy
- allied health – a hidden gem

"We are very excited about this year's conference agenda," says Patricia Coutts, President of the Canadian Association of Wound Care. "There are sessions of interest for everyone who attends, and we're looking forward to the tremendous opportunities for collaboration and interaction between speakers and attendees."

For further information, visit www.cawc.net. For registration enquiries, contact Celine Bryenton (celine@cawc.net; 416-485-2292, ext. 223).

We look forward to seeing you at the 17th Annual Wound Care Conference.

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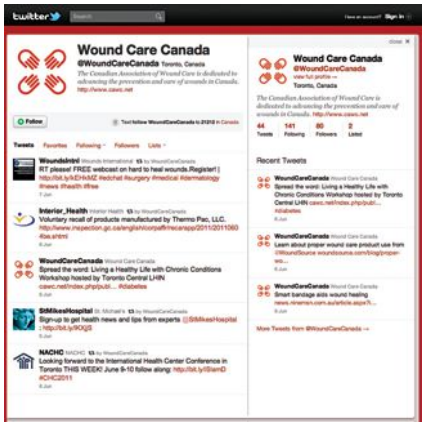


CAWC Institute of Wound Management and Prevention Director Announced

Linda Norton BSc OT MScCH, has been appointed Director of the CAWC Institute of Wound Management and Prevention. Linda has been a faculty member of the institute and is excited about this new opportunity. She is both a clinician and educator, and is involved in initiatives directed toward both healthcare professionals and lay audiences. Linda will be ably joined on the Institute's interdisciplinary committee by: David Keast BSc MSc Dip Ed MD CCFP FCFP; Kim LeBlanc BSCN RN MN CETN(C); and Dawn Christensen BSCN RN MN CETN(C).

Register Now for the L-Series

The CAWC Institute of Wound Management and Prevention is offering its L-Series educational sessions across Canada throughout 2011. Two very successful L-Series events were held this past Spring in Edmonton and Saskatoon. For information regarding future dates and locations, and to register, please visit www.cawc.net.

Making a Difference: Recognizing Canada's Wound Care Heroes

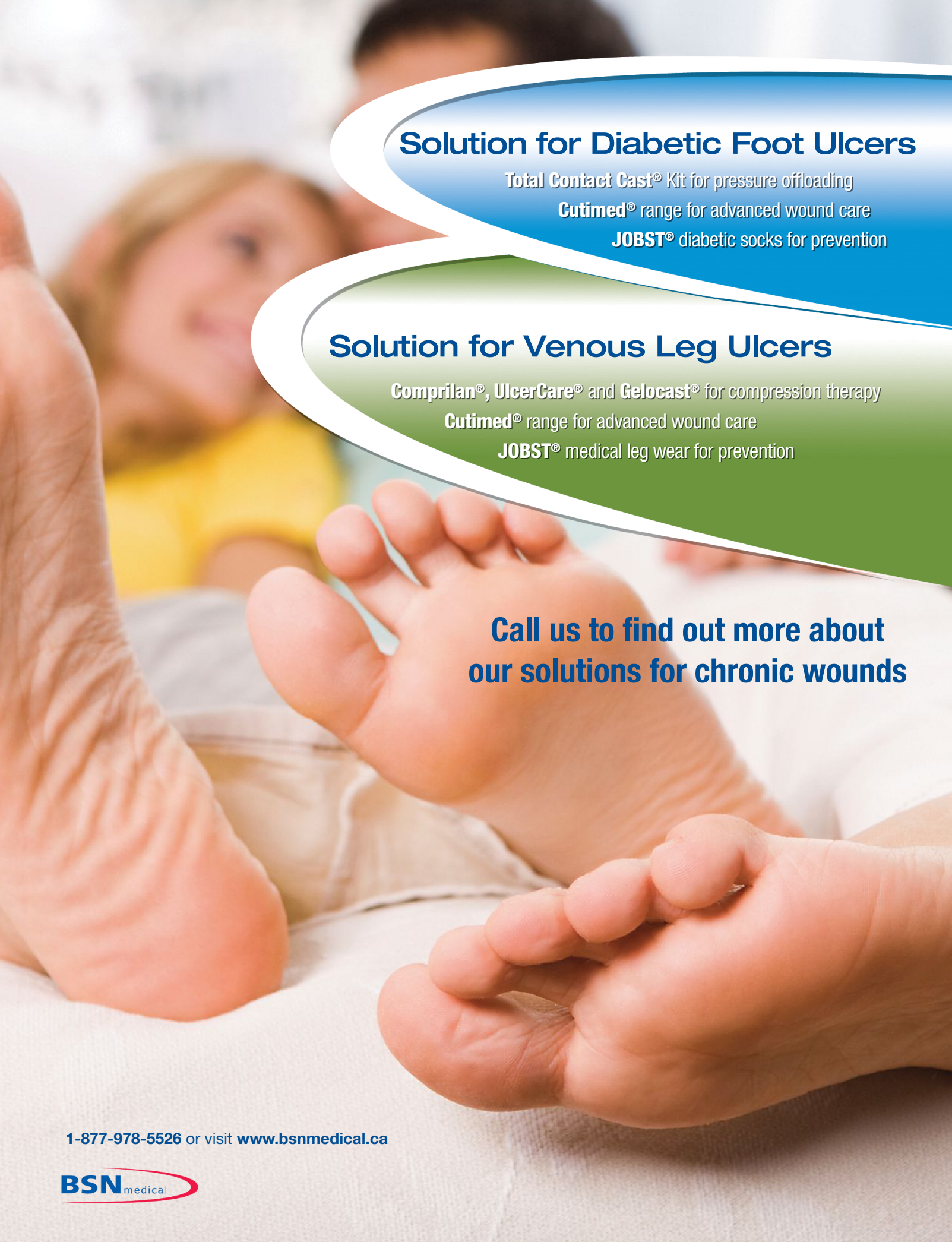
The Canadian Association of Wound Care is inviting healthcare professionals to nominate someone in the community who has made a difference in the lives of people suffering from acute or chronic wounds.

The ideal candidate is a healthcare professional working in the community who has gone above and beyond the call of duty to help a patient deal with a wound; implement a wound care prevention program; or help patients and their families navigate the healthcare system. In short, a wound care hero who is improving the lives of their patients on a daily basis.

If you know someone who you think qualifies – or if you have a story you'd like to share – please let us know.

Selected Wound Care Hero nominees will be recognized at the CAWC's 17th Annual Wound Care Conference, to be held in Ottawa from November 3 to 6, 2011. The deadline for submissions is August 31, 2011.

For more information, and to complete a nomination form, please visit our website: www.cawc.net.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Underutilization of Physiotherapists and Biophysical Agents in Wound Care

BY

Deirdre O'Sullivan-Drombolis BSc PT MClSc (Wound Healing)

Lyndsay Orr, BSc PT MClSc (Wound Healing)

Abstract

An interdisciplinary team model has been shown to improve outcomes in many patient populations, including patients with chronic wounds. Best practice guidelines worldwide encourage the coordination of all disciplines to maximize outcomes in people with chronic wounds, with the physiotherapist being a key member of this team. Physiotherapists benefit the team with their advanced knowledge of biomechanics and anatomy to assist with positioning, mobility, function, seating and equipment issues. Physiotherapists also have the skills to perform full wound assessments using outcome measures to monitor healing. Arguably, the most underutilized skill of the physiotherapist is the use of biophysical agents as adjunctive therapies in chronic wound care. Over the past 50 years, many research studies have been conducted using physical modalities such as electrical stimulation, ultrasound and ultraviolet light in individuals with chronic pressure, venous or diabetic foot ulcers, indicating improved patient outcomes with these treatments. Despite this, physiotherapists report that minimal to none of their practice includes wound care. There must be an increase in the translation of knowledge to physiotherapists to promote optimal healing in these patients, as is supported by evidence-based practice. This paper proposes solutions to increase the use of physiotherapists and biophysical agents in wound care.

Introduction

Best practice in wound care recommends treatment by an interdisciplinary team that is able to offer a wide range of skills, knowledge and expertise.[1] As part of this team, physiotherapists can offer proficiency in many areas of wound care, including patient and wound evaluation, pressure mapping and other evaluations of pressure-relieving surfaces, compression therapy and additional forms of edema management, biophysical agents and exercise programs that result in the restoration of function and mobility.[2] Physiotherapists are unique in their training in being able to offer a wealth of knowledge and skill in biomechanics, exercise prescription and applying biophysical agents directly to the wound bed. Some physiotherapists have received additional training and are competent in specialized skills such as the evaluation of wound-healing outcomes, dressing selection and application, debridement, orthotics, total contact casting and offloading, and manual lymph drainage.

There is variability between evidence-based practice and clinical practice in many areas in the treatment of wounds. In a retrospective study, Fife and colleagues found that of 264 patients with diabetic foot ulcers in 16 states, only 6% received total contact casting, even though this is the gold standard in treatment.[3] In the same study, it was determined that of 2,139 patients with venous foot ulcers, only 17% received adequate compression therapy, even though it has some of the strongest evidence of any treatment in wound care.

Gaps have also been found to exist between the scientific evidence and its application in clinical practice in other areas of physiotherapy that have been extensively researched.

Although the literature is showing us quite clearly what is best practice, this is not translating into clinical practice in many areas of healthcare. In the present study we investigated this further, focusing specifically on the role of the physiotherapist in wound care teams.

Methods

The literature was reviewed to investigate the involvement of physiotherapists in the treatment of patients with wounds. To more explicitly explore the use of biophysical agents, 7 best practice guidelines for the treatment of wounds were reviewed for their recom-

Deirdre O'Sullivan-Drombolis is a Physiotherapist with Riverside Health Care Facilities, Fort Frances, Ontario.

Lyndsay Orr is a Physiotherapist with Cambridge Memorial Hospital, Cambridge, Ontario.

mendations in the application of modalities for adjunctive wound healing.[4–17] Another search was conducted to establish what physiotherapists do clinically to treat patients with wounds.

Findings

Physiotherapists receive expert training in anatomy, physiology and biomechanics. This knowledge can be used to augment an interdisciplinary team to help patients with many different types of wounds, including pressure, venous and diabetic foot ulcers. All physiotherapists have skills that are shown by the evidence to help speed the wound healing.

Chronic wounds are most effectively treated by first addressing the primary etiology of the ulcer. Range of motion and strengthening exercises improve the function of the calf muscle pump, which will aid in clearing venous congestion, help with glycemic control, address foot deformities, help control tone and improve strength for transfers. Modalities such as pneumatic compression and electrical stimulation, massage and compression wrapping decrease edema. Offloading can accommodate foot deformities. Positioning and transfer work will decrease pressure and shearing. Fitting patients with appropriate gait aids can enable them to mobilize. Pain has a negative effect on healing. There are many tools at a physiotherapist's disposal to treat pain, including transcutaneous electrical nerve stimulation and acupuncture. Patient education is key in gaining adherence to treatment plans (Table 1).[18–21]

Perhaps the strongest evidence for the involvement of a physiotherapist in the treatment of patients with wounds is with using biophysical agents to actively treat wounds and stimulate the closure of chronic non-healing wounds. This practice is recommended by several prominent best practice guidelines in the area of wound care. The general consensus of the best practice recommendations outlined in Table 2[5–17] is that electrical stimulation has the highest level of evidence in aiding wound closure in all wound types, especially diabetic foot and pressure ulcers. Ultrasound has strong evidence to support its use with venous leg ulcers. Ultraviolet light therapy and pulsed electromagnetic frequency have also been shown to benefit wound healing.

What is actually happening clinically?

The literature review revealed 3 studies: 2 published papers and 1 unpublished set of data that surveyed therapists in the US and Canada regarding their participation and treatment preferences in wound care (Table 3).

In the US, physiotherapists undergo mandatory courses in wound care as a part of their professional training, and there is a wound special interest group as a part of their national organization (the American Physical Therapy Association). In Canada, in contrast, few physiotherapy programs have wound care training, and the Canadian Physiotherapy Association does not list wounds as a condition therapists treat.

Guihan and colleagues gave a cross-sectional survey to occupational and physiotherapists who specialize in treating patients with spinal cord injuries within the Department of Veteran Affairs in the US and who were in attendance at the 2009 Therapy Leadership Council in Spinal Cord Injury Conference.[22] In this survey, it was found that of the 24 physiotherapists who indicated they were doing direct wound care, only 50% reported treating patients with electrical stimulation, wound measurement and topical agent application. These therapists also undertook a wide variety of pressure ulcer management practices to treat patients with ulcers, such as passive range of motion, increasing mobility, pressure relief and safe transfers.

In a survey of 170 physiotherapists from Minnesota and North Dakota conducted by Meier and Dockter,[23] 65 therapists stated that they performed some type of wound care. Of these, 74% reported that <5% of their daily practice involved wound care. There was a significant relationship between the hours of continued education completed and the evaluation or treatment techniques used. Electrical stimulation was "never" used by 62% of therapists with <5 years' experience compared with 20% of those with 10 years' experience. This may indicate that the more education and experience a therapist receives, the more likely he or she is to use appropriate evaluation and treatment techniques such as electrical stimulation.

The barriers noted to implementing evidence-based practice are multi-faceted; thus, solutions to the problem also need to be multi-faceted.

TABLE 1

Physiotherapy interventions that do not require local wound care

Venous leg ulcers	Diabetic foot ulcers	Pressure ulcers
■ Range of motion exercises to encourage the functioning of the calf muscle pump ■ Increase mobility ■ Use of gait aids ■ Edema reduction ■ Pain relief ■ Patient education	■ Conditioning to aid in blood glucose control ■ Range of motion and strengthening exercises specific to addressing foot deformities ■ Offloading ■ Increase mobility ■ Use of gait aids ■ Pain relief ■ Patient education	■ Range of motion exercises ■ Strengthening exercises ■ Positioning ■ Pain relief ■ Safe transfers ■ Increase mobility ■ Use of gait aids ■ Patient education

TABLE 2

Best practice guidelines and recommendations for the use of biophysical agents

Guideline	Diabetic foot ulcer	Venous leg ulcer	Pressure ulcer
CAWC	Consider the use of adjunctive therapies: SOE: 1a–IV	Consider appropriate adjunctive therapies: SOE: A	E-stim: SOE: A US: SOE: B UVC: SOE: B PEMF: SOE: B Laser: SOE: C
RNAO	E-stim: LOE: Ia	US: LOE: A E-stim: LOE: B	E-stim: LOE: Ib UVC: LOE: IIa
Wound Healing Society	E-stim may be of benefit in aiding healing: level I	E-stim may be useful in reducing the size: level I Laser, phototherapy and US have not been shown statistically to improve healing: level I	E-stim may be useful in the treatment of ulcers that have not healed with conventional therapy: level I
ICSI	–	–	Consider the use of direct-contact E-stim in the management of recalcitrant category/stage II ulcers, as well as category/stage III and IV ulcers: SOE: A Of all the adjunct modality studies done on pressure ulcers, E-stim carries the highest level of evidence, followed by NPWT, then all others
AHCPR	–	–	E-stim: Strength A UVC: Strength C Laser: Strength C US: Strength C
EPUAP/NPUAP	–	–	E-Stim: SOE: A PEMF: SOE: C UVC: SOE: C US: SOE: C Infrared therapy: insufficient evidence Laser therapy: insufficient evidence
CSCM	–	–	E-stim: scientific evidence I/II; grade of recommendation: A; strength of panel opinion: strong UVC, laser therapy, US: insufficient supporting evidence to justify their recommendation

AHCPR = Agency for Health Care Policy and Research; CAWC = Canadian Association of Wound Care; CSCM = Consortium for Spinal Cord Medicine; EPUAP = European Pressure Ulcer Advisory Panel; E-stim = electrical stimulation; ICSI = Institute for Clinical Systems Improvement; LOE = level of evidence; NPUAP = National Pressure Ulcer Advisory Panel; NPWT = negative pressure wound therapy; PEMF = pulsed electromagnetic frequency; RNAO = Registered Nurses' Association of Ontario; SOE = strength of evidence; US = ultrasound; UVC = ultraviolet light therapy

Wound care in Canada

The role of physiotherapy in wound care in Canada is much less developed, compared with the US and other countries. The Practice Guideline Advisory Task Force of the Physiotherapy Association of British Columbia identified the prevention, assessment and management of skin and wound issues as 1 of 3 foci for 2009/2010. A survey was undertaken by Alison Hoens, British Columbia Physical Therapy Knowledge Broker, to establish current practice patterns and the needs and preferred strategies for supporting practice in this field. The information obtained from this survey is meant to be used to inform a knowledge translation plan to enhance physiotherapy prevention, assessment and treatment of skin and wound issues in British Columbia.[24]

An invitation to participate in the survey was sent

continued on page 12

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TABLE 3

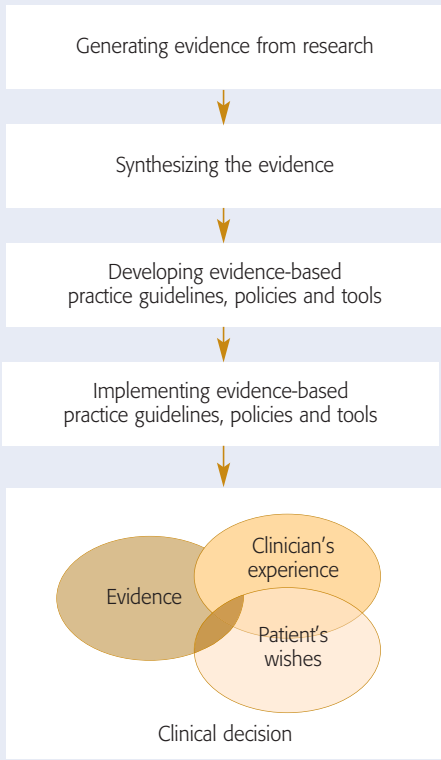
Therapists who reported using biophysical agents

Study (reference)	Electrical stimulation (%)	Ultraviolet light therapy (%)	Laser (%)	Ultrasound therapy (%)	Hydrotherapy (%)
Guihan and colleagues[22]	>50	N/A	N/A	N/A	N/A
Meier and colleagues[23]	65.2	N/A	N/A	60.6	97
University of British Columbia[24]	3.6	1.8	9.3	4.8	12

to all members of the Physiotherapy Association of British Columbia via a link to Survey Monkey, and 243 physiotherapists responded over a 1-month period in 2009: 27.1% of respondents routinely conducted wound risk assessments, while 9.7% of therapists performed detailed wound assessments. With respect to the treatment of wounds using electrophysical agents, the 4 most commonly utilized modalities were hydrotherapy (12%), low-level laser therapy (9.3%), ultrasound (4.8%) and electrical stimulation (3.6%). This utilization pattern is a reversal of the evidence for effectiveness found in the literature. While the results of this informal survey must be interpreted with caution (the study was not piloted or distributed to a random sample), it does provide an indication that the participation of physiotherapists in the area of skin and wound care needs to be encouraged.

FIGURE 1

Knowledge translation framework guiding physiotherapist wound care practice[29]



Evidence-based practice implementation

Based on the articles identified in the current review, there seems to be a gap between what the literature is stating is evidence-based practice and what is actually being performed in the clinic, home or hospital environment. Jette and colleagues noted that therapists believe that evidence in practice is necessary, that the literature is helpful to their practices and that better patient care results when evidence is used.[25] To take this a step further, some experts stress that professionals have a moral responsibility to practise in ways that are underpinned by the best research available.[26] That being so, why does there seem to be such a lack of translation of the best evidence into everyday practice? Several studies have investigated barriers to the implementation of research findings into the clinical world of therapists.[27–35]

Barriers to evidence-based practice implementation include:

- amount of time required for retrieving, interpreting and applying research;
- skill to search literature;
- size and complexity of the research base;
- publication bias;
- perceived applicability of research findings;
- poor access to literature;
- support of administration;
- ineffective education; and
- lack of cooperation from physicians.

The barriers noted to implementing evidence-based practice are multi-faceted; thus, solutions to the problem also need to be multi-faceted (Figure 1). These include:

- interactive education sessions on utilizing research and wound care skills tailored for physiotherapists

(through live as well as online sessions);
- reminders in relevant physiotherapy and wound care publications about the skills physiotherapists can bring to wound care;
- standardizing what is taught in universities with respect to wound care;
- promoting wound care to licensing bodies and professional associations;
- social marketing to physicians, nursing, allied health and healthcare consumers;
- identifying wound care opinion leaders to act as mentors;
- establishing a wound care interest group for physiotherapists and affiliating this group with other allied health professionals and nursing staff;
- establishing a website to summarize and appraise relevant wound care research;
- establishing best practice guidelines specific to physiotherapy treatment of wounds; and
- including clinicians in research to ensure the clinical applicability of the literature.

Conclusions

It is important to harness the expertise that physiotherapists have in anatomy, physiology and biomechanics, as these areas are integral in removing the cause of many patients' wounds. A physiotherapist does not necessarily need to have a special interest in wound care in order to be a valuable asset to a wound care team, as most therapists have skills that can benefit wound healing. In addition, there are physiotherapists who, with special training and delegation in wound care, have a subset of particular skills. These include patient and wound evaluation, dressing selection and application, debridement and local use of biophysical agents.

As in many other areas in healthcare, there seems to be a disconnect between what should be done and what is actually being practised by physiotherapists in wound care. The barriers to this translation of knowledge are many and are a recurring theme in all areas of healthcare. Although wound care teams should actively seek out physiotherapists as an integral part of the team, it is physiotherapists who are responsible for educating others regarding their capabilities in wound care and actively marketing their services.[23] Physiotherapists with specialized wound care training need to act as resources for all physiotherapists and set in motion some of the aforementioned solutions to overcome the lack of best practice in wound care. The *Regulated Health Professionals Act* will be implemented in September 2011 to give physiotherapists in Ontario the authority to practice wound care with special training. Given this change, this is an ideal time for physiotherapists to promote themselves as key members of the wound care team.

Interdisciplinary care enables clinicians to provide holistic, evidence-based care, as team members' skills, experience and knowledge are pooled together to produce the best outcomes. These include greater resource efficiency and improved standards of care through a reduction in duplication and gaps in service provision.[36] We all need to advocate working together as a team to promote the best outcomes for our patients.

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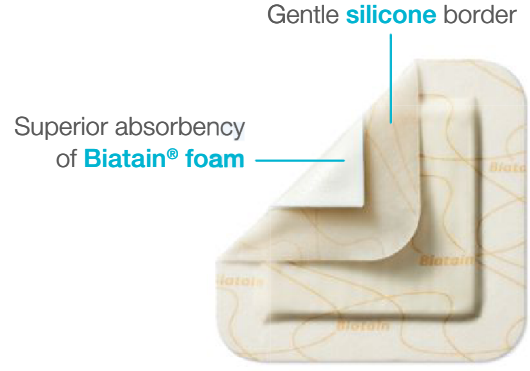

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Sous-utilisation de la physiothérapie et des agents biophysiques pour le soin des plaies

PAR

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Résumé

On a montré qu'un modèle d'équipe interdisciplinaire améliorait les résultats cliniques chez de nombreux patients, dont ceux qui présentent des plaies chroniques. Selon les lignes directrices mondiales sur les pratiques exemplaires, il faut coordonner toutes les disciplines pour obtenir les meilleurs résultats cliniques possible en présence de plaies chroniques. Le physiothérapeute est un important membre de l'équipe soignante : en raison de ses grandes connaissances de la biomécanique et de l'anatomie, il contribue à résoudre les problèmes liés à la mise en position, à la mobilité, au fonctionnement, à la position assise et à l'équipement. Le physiothérapeute peut aussi évaluer les plaies selon des critères donnés pour surveiller la cicatrisation. On aurait intérêt à faire davantage intervenir le physiothérapeute, car il peut utiliser des agents biophysiques pour les soins d'appoint des plaies. Au cours des 50 dernières années, de nombreuses études ont montré que des modalités thérapeutiques telles que la stimulation électrique, les ultrasons et le rayonnement ultraviolet amélioraient les résultats cliniques chez les patients présentant des plaies chroniques, des ulcères veineux ou des ulcères du pied diabétique. Malgré ces résultats, les physiothérapeutes s'occupent très peu ou pas du tout du soin des plaies. Comme le montre la pratique fondée sur des données probantes, il faut augmenter le transfert des connaissances aux physiothérapeutes pour favoriser la cicatrisation optimale des plaies. Le présent article propose des solutions pour augmenter l'utilisation des services des physiothérapeutes et des agents biophysiques pour le soin des plaies.

Introduction

Pour le traitement des plaies, les pratiques exemplaires recommandent l'intervention d'une équipe interdisciplinaire dont les compétences, les connaissances et l'expertise sont vastes[1]. Au sein d'une telle équipe, le physiothérapeute peut contribuer à divers aspects du soin des plaies, dont l'évaluation du patient et de la plaie, la cartographie de la pression et autres évaluations des surfaces d'appui qui soulagent la pression, la compressothérapie et autres formes de prise en charge de l'œdème, les agents biophysiques, ainsi que les programmes d'exercice qui permettent le recouvrement des fonctions et de la mobilité[2]. En raison de sa formation unique, le physiothérapeute a une foule de connaissances et de compétences dans les domaines de la biomécanique, de la prescription d'exercices et de l'application d'agents biophysiques directement sur le lit de la plaie. Certains physiothérapeutes ayant reçu une formation supplémentaire ont aussi des compétences spécialisées comme l'évaluation de la cicatrisation des plaies, le choix et l'application des pansements, le parage des plaies, les orthèses, les bottes plâtrées et de décharge à contact total et le drainage lymphatique manuel.

Il y a des disparités entre la pratique fondée sur des données probantes et la pratique clinique pour de nombreux aspects du traitement des plaies. Une étude rétrospective de Fife et ses collaborateurs a révélé qu'une botte plâtrée à contact total avait été utilisée chez seulement 6 % des 264 patients de 16 états présentant un ulcère du pied diabétique, même si c'est le traitement de référence[3]. La même étude a montré que seuls 17 % des 2139 patients présentant un ulcère veineux du pied avaient reçu une compressothérapie convenable, même si de tous les traitements des plaies, c'est pour la compressothérapie qu'on a les meilleures données probantes.

On a aussi constaté qu'il y avait des disparités entre les données probantes scientifiques et leur application à la pratique clinique dans d'autres domaines de la physiothérapie ayant beaucoup été étudiés.

Bien que les pratiques exemplaires soient explicites

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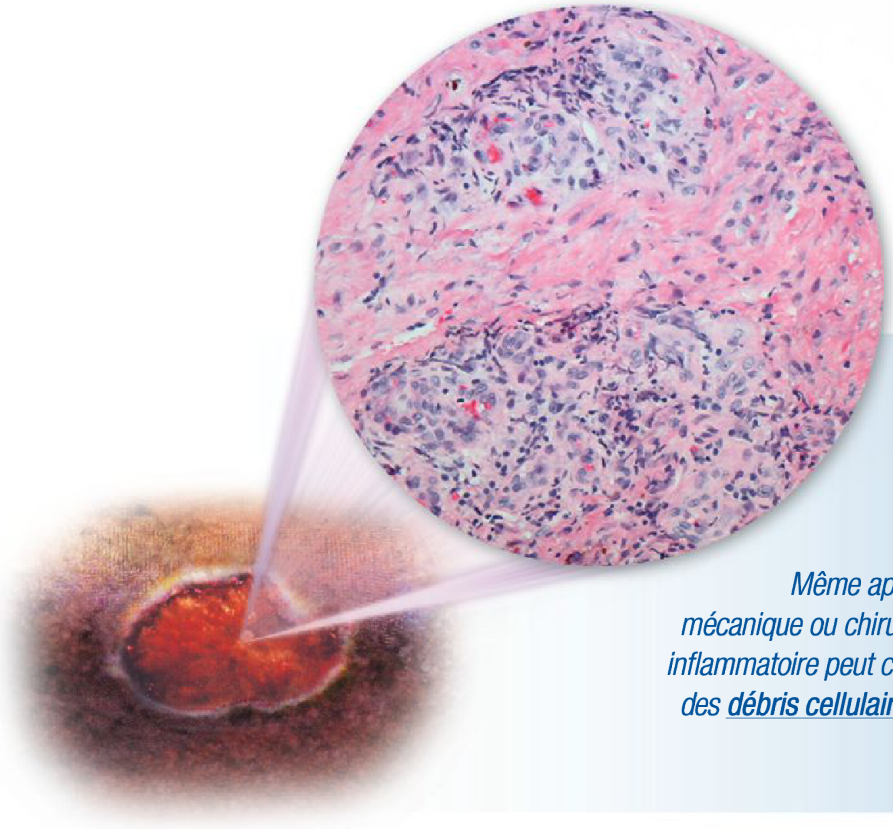

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Occasional slight transient erythema has been noted in surrounding tissue when applied outside the wound. One case of systemic hypersensitivity has been reported after 1 year of treatment with collagenase and cortisone.

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On a noté un érythème occasionnel et léger sur les tissus environnants lorsque l'application de l'onguent dépasse le pourtour de la plaie. Un cas d'hypersensibilité systémique a été rapporté après un an de traitement à la collagénase et à la cortisone.

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CLINICAL PHARMACOLOGY: Santyl® (collagenase) possesses the ability to digest insoluble collagen, undenatured and denatured, by peptide bond cleavage, under physiological conditions of pH and temperature. This ability makes it particularly effective in the removal of detritus from dermal lesions, contributing towards the more rapid formation of granulation tissue and subsequent epithelization of dermal ulcers and severely burned areas. Collagen in healthy tissue or in newly formed granulation tissue is not digested.

INDICATIONS: Santyl® (collagenase) is a sterile ointment indicated for the debridement of dermal ulcers or severely burned areas.

CONTRAINDICATIONS: Application is contraindicated in patients who have shown local or systemic hypersensitivity to collagenase.

WARNINGS: Debilitated patients should be closely monitored for systemic bacterial infections because of the theoretical possibility that debriding enzymes may increase the risk of bacteremia.

PRECAUTIONS: The enzyme's optimal pH range is 6 to 8. Significantly lower pH conditions have a definitive adverse effect on the enzyme's activity, and appropriate precautions should be carefully taken. The enzymatic activity is also adversely affected by detergents, hexachlorophene and heavy metal ions such as mercury and silver that are used in some antiseptics and by cobalt, magnesium and manganese. When it is suspected such materials have been used, the site should be carefully cleansed by repeated washings with normal saline before Santyl® (collagenase) ointment is applied. Soaks containing metal ions or acidic solutions such as Burow's solution should be avoided because of the metal ion and low pH. Cleansing materials such as hydrogen peroxide or Dakin's solution followed by sterile normal saline do not interfere with the activity of the enzyme. The ointment should be confined to the area of the lesion in order to avoid the possible risk of irritation or maceration of normal skin; however, the enzyme does not damage newly forming granulation tissue. A slight erythema has been noted occasionally in the surrounding tissue particularly when the enzyme ointment was not confined to the lesion. This can be readily controlled by protecting the healthy skin with a material such as zinc oxide paste. Since the enzyme is a protein, sensitization may develop with prolonged use.

ADVERSE REACTIONS: Although no allergic sensitivity or toxic reactions have been noted in the recorded clinical investigations to date, one case of systemic manifestations of hypersensitivity has been reported in a patient treated for more than one year with a combination of collagenase and cortisone. Irritation, maceration or erythema has been noted where prolonged contact of normal skin with Santyl® (collagenase) ointment has been allowed, either by application of the ointment to areas of normal skin or by excessive application of ointment to the wound crater with subsequent spread to normal skin when dressings are applied. The reported incidence for this type of reaction was 1.8%.

SYMPTOMS AND TREATMENT OF OVERDOSE: Symptoms: To date, the irritation, maceration or erythema reported on prolonged contact of normal skin with Santyl® (collagenase) ointment constitute the only symptoms of overdosage reported. **Treatment:** Santyl® (collagenase) ointment can be rendered inert by the application of Burow's solution USP (pH 3.6 - 4.4) to the treatment site. If this should be necessary, reapplication should be made only with caution.

DOSAGE AND ADMINISTRATION: For external use only. Santyl® (collagenase) ointment should be applied once daily, or more frequently if the dressing becomes soiled (as from incontinence) in the following manner: **(1)** Prior to application the lesions should be gently cleansed with a gauze pad saturated with sterile normal saline, to remove any film and digested material. If a stronger cleansing solution is required, hydrogen peroxide or Dakin's solution may be used, followed by sterile normal saline. **(2)** Whenever infection is present, as evidenced by positive cultures, pus, inflammation or odor, it is desirable to use an appropriate antibacterial agent. Should the infection not respond, therapy with Santyl® (collagenase) ointment should be discontinued until remission of the infection. **(3)** Santyl® (collagenase) ointment should be applied (using a tongue depressor or spatula) directly to deep wounds, or when dealing with shallow wounds, to a non-adherent dressing or film dressing which is then applied to the wound. The wound is covered with an appropriate dressing such as a sterile gauze pad and properly secured. **(4)** Use of an occlusive or semi-occlusive dressing may promote softening of eschar, if present. Alternatively, crosshatching thick eschar with a #11 blade is helpful in speeding up debridement then cleanse with sterile saline. It is also desirable to remove as much loosened detritus as can be done readily with forceps and scissors. **(5)** All excess ointment should be removed each time the dressing is changed. **(6)** Use of Santyl® (collagenase) ointment should be terminated when debridement of necrotic tissue is complete and granulation is well under way.

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PHARMACOLOGIE CLINIQUE : Santyl® (collagénase) a la capacité de digérer le collagène insoluble, non dénaturé et dénaturé, par clivage de la liaison peptidique à un pH et à une température physiologiques. Cette caractéristique le rend particulièrement efficace dans l'élimination des déchets des lésions dermiques favorisant ainsi la formation du tissu de granulation et l'épithélialisation ultérieure des zones dermiques ulcérées et gravement brûlées. Le collagène des tissus sains ou du nouveau tissu de granulation n'est pas digéré.

INDICATIONS : Santyl® (collagénase) est un onguent stérile indiqué pour le débridement des zones dermiques ulcérées ou gravement brûlées.

CONTRE-INDICATIONS : L'application est contre-indiquée chez les patients ayant présenté une hypersensibilité locale ou systémique à la collagénase.

MISE EN GARDE : Les patients atteints de conditions débilitantes doivent être surveillés étroitement pour éviter la généralisation des infections bactériennes. Les enzymes de débridement augmenteraient le risque de bactériémie.

PRÉCAUTIONS : Le pH optimal de l'enzyme est de 6 à 8. Un pH nettement inférieur à un effet nettement adverse sur l'action de l'enzyme et des précautions appropriées doivent alors être prises. L'action de l'enzyme est également contrariée par les détergents, l'hexachlorophène et les ions de métaux lourds, comme le mercure et l'argent, présents dans certains antiseptiques, et par le cobalt, le magnésium et le manganèse. Quand on soupçonne l'utilisation de ces produits, la zone affectée doit être soigneusement nettoyée par des lavages répétés avec une solution saline avant l'application de l'onguent Santyl® (collagénase). Les bains contenant des ions de métaux ou des solutions acides comme la solution de Burow doivent être évités en raison de l'ion métal et du faible pH. Les solutions nettoyantes comme l'eau oxygénée ou la solution de Dakin suivie d'une solution stérile saline n'entravent pas l'action de l'enzyme. L'application de l'onguent doit se limiter à la zone affectée pour éviter le risque possible d'irritation ou de macération de la peau saine. Cependant, l'enzyme n'altère pas le nouveau tissu de granulation. Un érythème bénin dans le tissu avoisinant pourrait se produire. Cela peut facilement être évité en protégeant la peau saine avec un produit comme de la pâte d'oxyde de zinc. Compte tenu de la nature protéique de l'enzyme présent dans le médicament, son emploi prolongé pourrait amener une sensibilisation.

EFFETS SECONDAIRES : Bien qu'aucune sensibilité allergique ni réaction toxique n'aient été notées à ce jour dans les compte rendus d'études, on a signalé un cas de manifestations systémiques d'hypersensibilité chez un patient traité pendant plus d'un an avec une association de collagénase et de cortisone. On a noté de l'irritation, de la macération ou de l'érythème dans le cas de contact prolongé de la peau normale avec l'onguent Santyl® (collagénase), soit par application de l'onguent sur les régions normales de la peau, soit par application excessive de l'onguent dans le cratère de la plaie, permettant à celui-ci de s'étendre à la peau normale lors de l'application des pansements. L'incidence signalée de ce type de réaction était de 1,8%.

SYMPTÔMES ET TRAITEMENT DU SURDOSAGE: Symptômes: Jusqu'ici, l'irritation, la macération ou l'érythème signalés en cas de contact prolongé de la peau saine avec l'onguent Santyl® (collagénase) représentent les seuls symptômes signalés de surdosage. **Traitement:** On peut rendre l'onguent Santyl® (collagénase) inerte en appliquant la solution de Burow U.S.P. (pH 3.6-4.4) sur la plaie. La réapplication du produit, si elle est considérée nécessaire, ne se fera qu'avec prudence.

POSOLOGIE ET ADMINISTRATION : Pour usage externe seulement. L'onguent Santyl® (collagénase) doit être appliqué une fois par jour ou plus fréquemment si le pansement se souille (à cause d'incontinence par exemple) de la façon suivante : **(1)** Avant application, les lésions doivent être nettoyées doucement avec une gaze saturée d'une solution stérile saline normale pour enlever toute pellicule et toute matière digérée. Si l'on a besoin d'une solution nettoyante plus puissante, on peut utiliser de l'eau oxygénée ou de la solution de Dakin suivie de solution stérile saline normale. **(2)** En cas d'infection, révélée par la présence de cultures positives, de pus, d'une inflammation ou d'une odeur, il serait souhaitable d'employer un agent antibactérien approprié. Il faut interrompre le traitement au Santyl® (collagénase) jusqu'à rémission de l'infection, si l'infection ne se résorbe pas. **(3)** Appliquer Santyl® (collagénase) directement sur les blessures profondes à l'aide d'un abaisse-langue ou d'une spatule. Pour les plaies superficielles, appliquer l'onguent sur une compresse non adhérente ou un pansement transparent à être déposée sur la plaie; puis recouvrir d'un pansement approprié tel une compresse de gaze stérile adéquatement retenue. **(4)** L'utilisation d'un pansement occlusif ou semi-occlusif peut favoriser le ramollissement de l'escarre, le cas échéant. Ou, si l'on hachure une escarre épaisse à l'aide d'une lame numéro 11, on peut accélérer le débridement. Nettoyer alors avec une solution saline stérile. Il est également souhaitable d'enlever autant de détritus lâches que possible à l'aide de pinces et de ciseaux. **(5)** Enlever tout excès d'onguent à chaque renouvellement du pansement. **(6)** Arrêter les applications de l'onguent Santyl® (collagénase) dès que le tissu nécrosé est suffisamment débridé et que le bourgeonnement est bien entamé.

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dans la littérature, dans beaucoup de domaines des soins de santé, elles ne sont pas appliquées en pratique clinique. La présente étude avait pour objet d'étudier cette question et, en particulier, le rôle du physiothérapeute au sein de l'équipe de soin des plaies.

Méthodes

On a procédé à un examen de la littérature pour déterminer dans quelle mesure les physiothérapeutes contribuaient au traitement des patients porteurs de plaies. Pour examiner expressément l'utilisation des agents biophysiques, on a analysé sept ensembles de pratiques exemplaires pour le traitement des plaies pour en tirer les recommandations en matière d'application des modalités de traitement d'appoint des plaies[4-17]. On a aussi procédé à une autre recherche pour déterminer les modalités cliniques qu'utilisent les physiothérapeutes chez les patients porteurs de plaies.

Constatations

Les physiothérapeutes reçoivent une formation spécialisée en anatomie, en physiologie et en biomécanique. Leurs connaissances peuvent aider une équipe interdisciplinaire à traiter de nombreux types de plaies, dont les plaies de pression et les ulcères veineux et du pied diabétique. Tous les physiothérapeutes ont des compétences qui, selon les données probantes, peuvent contribuer à accélérer la cicatrisation des plaies.

Pour traiter efficacement une plaie chronique, il faut commencer par s'occuper de la cause primaire de la plaie. Les exercices d'amplitude et de force améliorent la fonction de la pompe musculaire du mollet, ce qui contribue à l'élimination de la congestion veineuse, favorise l'équilibre de la glycémie, facilite la prise en considération des difformités du pied, aide à maîtriser le tonus et améliore la force en vue des transferts. Des mesures comme la compression pneumatique, la stimulation électrique, le massage et l'application de pansements compressifs réduisent l'œdème. La mise en décharge peut être utile en présence de difformités du pied. La mise en position et le transfert réduisent la pression et le cisaillement. L'utilisation d'aides à la déambulation convenables peut permettre au patient de se déplacer. La douleur a un effet négatif sur la cicatrisation, mais le physiothérapeute dispose de nombreux outils pour soulager la douleur, dont la neurostimulation électrique transcutanée et l'acupuncture. L'éducation du patient est la clé de la fidélité au plan de traitement (tableau 1)[18–21].

S'il est particulièrement important de mettre les physiothérapeutes à contribution, c'est peut-être surtout parce qu'ils peuvent utiliser des agents biophysiques pour traiter les plaies chroniques qui ne cicatrisent pas et en favoriser la fermeture. Plusieurs des principales lignes directrices sur les pratiques exemplaires recommandent les agents biophysiques pour le soin des plaies. Selon le consensus général des recommandations des pratiques exemplaires présentées au tableau 2 [25-17], c'est pour la stimulation électrique que le niveau des données probantes est le plus élevé en ce qui a trait à la fermeture de tous les types de plaies, surtout les ulcères du pied diabétique et les plaies de pression. De solides données probantes soutiennent l'utilisation des ultrasons contre les ulcères veineux de la jambe. On a en outre montré que le rayonnement ultraviolet et la stimulation électromagnétique pulsée favorisaient la cicatrisation des plaies.

Pratique clinique

L'analyse documentaire a permis de repérer trois études – deux comptes rendus publiés et un ensemble de données non publié – sur la participation au soin des plaies et les préférences thérapeutiques de physiothérapeutes américains et canadiens (tableau 3).

Aux États-Unis, la formation professionnelle des physiothérapeutes comporte des cours obligatoires sur le soin des plaies et il y a un groupe d'intérêt sur les plaies au sein de l'association nationale (American Physical Therapy Association). Au Canada, par contre, peu de programmes de physiothérapie comportent une formation sur le soin des plaies et les plaies ne figurent pas dans la liste des troubles traités par les physiothérapeutes dressée par l'Association canadienne de physiothérapie.

Guihan et ses collaborateurs ont mené une enquête transversale auprès d'ergothérapeutes et de physiothérapeutes se spécialisant dans le traitement des trau-

TABLEAU 1

Mesures physiothérapeutiques qui n'exigent pas de soins locaux des plaies

Ulcères veineux de la jambe	Ulcères du pied diabétique	Plaies de pression
■ Exercices d'amplitude pour améliorer le fonctionnement de la pompe musculaire du mollet ■ Augmentation de la mobilité ■ Utilisation d'aides à la déambulation ■ Réduction de l'œdème ■ Soulagement de la douleur ■ Éducation du patient	■ Conditionnement pour favoriser l'équilibre de la glycémie ■ Exercices d'amplitude et de force adaptés aux difformités des pieds ■ Mise en décharge ■ Augmentation de la mobilité ■ Utilisation d'aides à la déambulation ■ Soulagement de la douleur ■ Éducation du patient	■ Exercices d'amplitude ■ Exercices de force ■ Mise en position ■ Soulagement de la douleur ■ Transferts sécuritaires ■ Augmentation de la mobilité ■ Utilisation d'aides à la déambulation ■ Éducation du patient

TABLEAU 2

Pratiques exemplaires : lignes directrices et recommandations sur l'utilisation des agents biophysiques

Source	Ulcère du pied diabétique	Ulcère veineux de la jambe	Plaie de pression
ACSP	Envisager des traitements d'appoint : SDP : 1a–IV	Envisager des traitements d'appoint convenables : SDP : A	SÉ : SDP : A US : SDP : B TRU : SDP : B SEP : SDP : B Laser : SDP : C
AIIAO	SÉ : NDP : Ia	US : NDP : A SÉ : NDP : B	SÉ : NDP : Ib TRU : NDP : IIa
Wound Healing Society	La SÉ peut accélérer la cicatrisation : niveau I On n'a pas démontré statistiquement	La SÉ peut réduire la taille : niveau I que le laser, la photothérapie et les US amélioraient la cicatrisation : niveau I	La SÉ peut être utile pour le traitement des plaies qui ne sont pas cicatrisées par le traitement classique : niveau I
ICSI	–	–	Envisager l'utilisation de la stimulation électrique directe pour la prise en charge des plaies récalcitrantes de catégorie/stade II, III et IV : SDP : A De tous les traitements d'appoint des plaies de pression étudiés, c'est pour la SÉ que le niveau des donnés probantes est le plus élevé; viennent ensuite le TPPN puis tous les autres
AHCPR	–	–	SÉ : SDP : A TRU : SDP : C Laser : SDP : C US : SDP : C
EPUAP/NPUAP	–	–	SÉ : SDP : A SEP : SDP : C TRU : SDP : C US : SDP : C Traitement infrarouge : données probantes insuffisantes Traitement au laser : données probantes insuffisantes
CSCM	–	–	SÉ : données probantes scientifiques I/II; grade de la recommandation : A; solidité de l'opinion du groupe : forte TRU, traitement au laser, US : données probantes insuffisantes pour en justifier la recommandation

ACSP = Association canadienne du soin des plaies; AHCPR = Agency for Health Care Policy and Research; AIIAO = Association des infirmières et infirmiers autorisés de l'Ontario; CSCM = Consortium for Spinal Cord Medicine; EPUAP = European Pressure Ulcer Advisory Panel; ICSI = Institute for Clinical Systems Improvement; NDP = niveau des données probantes; NPUAP = National Pressure Ulcer Advisory Panel; SDP = solidité des données probantes; SÉ = stimulation électrique; SEP = stimulation électromagnétique pulsée; TPPN = traitement des plaies par pression négative; US = ultrasons; TRU = traitement au rayonnement ultraviolet

matismes médullaires au département des Anciens combattants des États-Unis et qui avaient assisté à la 2009 Therapy Leadership Council in Spinal Cord Injury Conference[22]. Cette enquête a révélé que seulement la moitié des 24 physiothérapeutes ayant dit intervenir directement dans le soin des plaies avaient recours à la stimulation électrique, à la mesure des plaies et à l'application d'agents topiques. Ces thérapeutes utilisaient aussi une vaste gamme de mesures pour la prise en charge des plaies de pression, telles que les exercices d'amplitude passifs, l'augmentation de la mobilité, le soulagement de la pression et les transferts sécuritaires.

Selon une enquête menée par Meier et Dockter au Minnesota et au Dakota du Nord[23], 65 des 170 physiothérapeutes interrogés prodiguaient certains soins des plaies. De ce nombre, 74 % ont signalé que moins

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TABLEAU 3

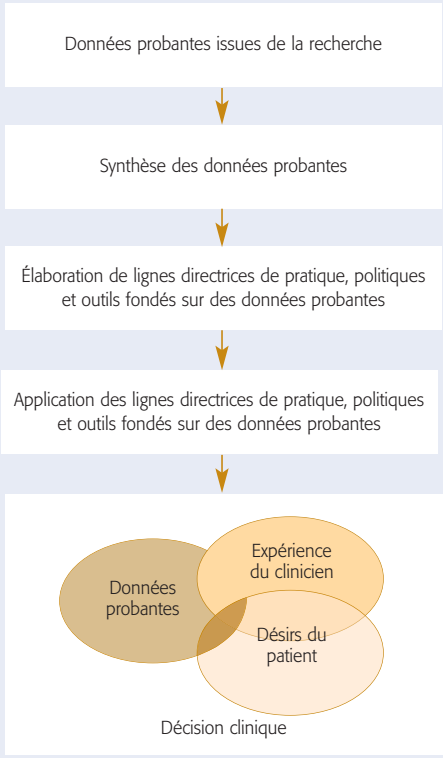
Physiothérapeutes ayant déclaré qu'ils utilisaient des agents biophysiques

Étude (référence)	Stimulation électrique (%)	Traitement au rayonnement ultraviolet (%)	Laser (%)	Ultrasons (%)	Hydrothérapie (%)
Guihan et collaborateurs[22]	> 50	N/D	N/D	N/D	N/D
Meier et collaborateurs[23]	65,2	N/D	N/D	60,6	97
Université de la Colombie-Britannique[24]	3,6	1,8	9,3	4,8	12

de 5 % de leurs activités quotidiennes avaient trait au soin des plaies. Il y avait un lien significatif entre le nombre d'heures de formation cumulé et les techniques d'évaluation ou de traitement utilisées. La stimulation électrique n'était jamais utilisée par 62 % des thérapeutes ayant moins de cinq ans d'expérience, par rapport à 20 % de ceux ayant dix ans d'expérience, ce qui pourrait indiquer que plus un thérapeute a de formation et d'expérience, plus il est susceptible d'utiliser les techniques d'évaluation et de traitement voulues, telles que la stimulation électrique.

FIGURE 1

Cadre du transfert des connaissances qui guide les physiothérapeutes pour le soin des plaies[29]



Le traitement des plaies au Canada

Au Canada, on a beaucoup moins recours à la physiothérapie pour le traitement des plaies qu'aux États-Unis ou que dans d'autres pays. Le groupe de travail consultatif sur les lignes directrices de la Physiotherapy Association of British Columbia a déterminé que la prévention, l'évaluation et la prise en charge des troubles cutanés et des plaies étaient un des trois centres d'intérêt en 2009-2010. Alison Hoens, courtière du savoir sur la physiothérapie en Colombie-Britannique, a mené une enquête pour déterminer quelles étaient les pratiques actuelles, ainsi que les besoins et stratégies de prédilection pour soutenir la pratique dans le domaine du soin des plaies. Les renseignements recueillis permettront d'élaborer un plan de transfert des connaissances ayant pour objet d'améliorer la prévention de la physiothérapie, ainsi que l'évaluation et le traitement des troubles cutanés et des plaies en Colombie-Britannique[24].

En 2009, tous les membres de la Physiotherapy Association of British Columbia ont été invités à participer à l'enquête par l'entremise d'un lien vers le site Survey Monkey, et 243 d'entre eux ont répondu au cours d'une période d'un mois. L'enquête a révélé que 27,1 % des répondants évaluaient systématiquement le risque de plaie et que 9,7 % procédaient à des évaluations détaillées des plaies. Pour ce qui est de l'utilisation d'agents électrophysiques pour le traitement des plaies, les quatre modalités les plus utilisées étaient l'hydrothérapie (12 %), le laser de faible intensité (9,3 %), les ultrasons (4,8 %) et la stimulation électrique (3,6 %). Selon les données probantes sur l'efficacité retrouvées dans la littérature, la fréquence d'utilisation de ces modalités devrait être inverse. Les résultats de cette enquête informelle doivent être interprétés avec prudence (l'étude n'était pas pilotée et l'échantillon n'était pas aléatoire), mais ils indiquent qu'il faut encourager la participation des physiothérapeutes au traitement des troubles cutanés et des plaies.

Mise en application de la pratique fondée sur des données probantes

Les articles repérés aux fins du présent article montrent

qu'il semble y avoir des disparités entre la pratique fondée sur des données probantes selon la littérature et les méthodes employées à la clinique, à domicile ou à l'hôpital. Jette et ses collaborateurs ont constaté que les thérapeutes sont d'avis que les données probantes sont nécessaires en pratique, que la littérature leur est utile et que les soins des patients sont meilleurs quand ils sont fondés sur des données probantes[25]. Qui plus est, certains experts avancent que les professionnels ont la responsabilité morale de fonder leur exercice sur les meilleures recherches qui soient[26]. Alors pourquoi les données probantes semblent-elles si peu appliquées en pratique courante? Plusieurs études ont été menées sur les obstacles à la mise en application clinique par les thérapeutes des résultats de la recherche[27–35].

Les obstacles à la mise en application de la pratique fondée sur des données probantes sont les suivants :

- temps qu'il faut pour repérer, interpréter et appliquer les données
- compétences en recherche documentaire
- taille et complexité des bases de données
- biais de publication
- perception de l'applicabilité des résultats de la recherche
- mauvais accès à la littérature
- appui de l'administration
- éducation inefficace
- manque de collaboration des médecins.

Comme les obstacles à la mise en application de la pratique fondée sur des données probantes comportent plusieurs facettes, il doit en être de même des solutions au problème (figure 1). Ces solutions sont les suivantes :

- séances de formation interactives sur l'utilisation des résultats de la recherche et des compétences en soin des plaies adaptées aux besoins des physiothérapeutes (offertes en personne et en ligne)
- rappels dans les publications sur la physiothérapie et le soin des plaies à propos des compétences que les physiothérapeutes peuvent appliquer au soin des plaies
- normalisation de la formation universitaire sur le soin des plaies
- promotion du soin des plaies auprès des organismes de réglementation professionnelle et des associations professionnelles
- marketing social s'adressant aux médecins, au personnel infirmier, aux services paramédicaux et aux consommateurs de soins de santé
- désignation de leaders d'opinion dans le domaine du soin des plaies pour agir à titre de mentors
- mise en place d'un groupe d'intérêt sur le soin des plaies pour les physiothérapeutes et affiliation de ce groupe avec d'autres professionnels des services paramédicaux et des soins infirmiers
- création d'un site Web pour résumer et évaluer les recherches pertinentes sur le soin des plaies
- élaboration de lignes directrices sur les pratiques exemplaires en matière de traitement physiothérapeutique des plaies
- participation de cliniciens à la recherche pour assurer l'applicabilité clinique de la littérature.

Conclusions

Il est important de mettre à profit l'expertise des physiothérapeutes en anatomie, en physiologie et en biomécanique, car des connaissances dans ces domaines sont nécessaires à l'élimination de la cause de la plaie chez de nombreux patients. Le physiothérapeute ne doit pas nécessairement avoir un intérêt particulier pour le soin des plaies pour être un membre utile de l'équipe de soin des plaies, car la plupart ont des compétences qui peuvent être mises à profit pour la cicatrisation des plaies. En outre, certains physiothérapeutes ont un sous-ensemble de compétences particulières en raison d'une formation spécialisée et d'une affectation au soin des plaies, par exemple en ce qui concerne l'évaluation des patients et des plaies, le choix et l'application des pansements, le parage et l'utilisation locale d'agents biophysiques.

Comme dans de nombreux autres domaines des soins de santé, il semble y avoir des disparités entre les mesures que les physiothérapeutes devraient prendre pour le soin des plaies et celles qu'ils prennent effectivement. Les obstacles à l'application des connaissances sont nombreux et communs à tous les domaines des soins de santé. Les équipes de soin des plaies devraient comprendre des physiothérapeutes, mais c'est à ces derniers que revient la responsabilité de dire aux autres professionnels qu'ils ont des compétences dans le domaine du soin des plaies et de faire la promotion active de leurs services[23]. Les phy-siothérapeutes qui ont reçu une formation spécialisée sur le soin des plaies doivent être des personnes-ressources pour tous les physiothérapeutes et voir à l'adoption de certaines des solutions ci-dessus pour que les pratiques exemplaires soient appliquées au soin des plaies. La *Loi sur les professions de santé réglementées*, qui entrera en vigueur en septembre 2011, permettra aux physiothérapeutes ontariens ayant reçu une formation spécialisée de pratiquer le soin des plaies. Le changement donne aux physiothérapeutes une occasion idéale de faire valoir leur rôle clé au sein de l'équipe de soin des plaies.

Les équipes interdisciplinaires offrent des soins

Pour le traitement des plaies, les pratiques exemplaires recommandent l'intervention d'une équipe interdisciplinaire dont les compétences, les connaissances et l'expertise sont vastes.

holistiques et fondés sur des données probantes et unissent leurs compétences, leurs connaissances et leurs expériences pour obtenir les meilleurs résultats possible. Il y a ainsi moins de chevauchement et de lacunes dans la prestation des services, ce qui améliore l'efficience de l'utilisation des ressources et les normes en matière de soins[36]. Nous devons tous encourager le travail d'équipe afin d'obtenir les meilleurs résultats possible chez nos patients.

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Pedorthic Management Plays Vital Role in Treating Diabetic Foot Wounds

BY
Brian Scharfstein C Ped (C), and John Embil MD FRCPC FACP

Introduction

Foot problems are a leading cause of hospitalization among Canadians living with diabetes. A total of 2.3 million Canadians are currently living with diabetes, of whom approximately 345,000 will develop a foot ulcer in their lifetime.[1] In 2006, more than 4,000 Canadians with diabetes had a limb amputated.[1] Of all amputations in Canada, 85% are the result of a nonhealing foot ulcer. More than half of these amputations may be prevented by appropriate footwear and more effective nail and foot care.[1]

Limb amputation is associated with a significant risk of mortality: 30% of Canadians with limb amputation will die within 1 year of amputation and 69% will not survive beyond 5 years.[1]

A number of foot problems are preventable through education and regular foot care. As orthotic and footwear experts, certified pedorthists work alongside physicians, wound care specialists and other healthcare providers as part of a patient's overall healthcare team to help prevent foot problems associated with diabetes.

This article outlines the case of a patient whose diabetes-related wounds put him at risk of amputation. It describes how pedorthic management helped the patient resume his daily activities.

Patient history and presentation

On presentation, Richard* was a 58-year-old male labourer with a 15-year history of type 2 diabetes. He was 5′ 6″ tall and weighed 115 kg. Richard had lacked sensation in his feet and lower legs for at least the past 5 years. He had fractured the bones of both feet and ankles over the past 3 years, resulting in significant changes to the shape of both feet. His job involved standing on concrete floors for much of the day, wearing steel-toe work boots. Richard was at high risk of foot ulcerations and ultimately of amputation.

Although Richard was knowledgeable and fully adherent to his diabetes management regime, including excellent control of blood glucose levels, regular foot care and the use of appropriately fitted footwear, he had progressively lost sensation in his feet (known as peripheral neuropathy).[2] More recently, Richard had experienced progressive left foot pain and difficulty walking. An X-ray of the left foot revealed bone fractures and midfoot collapse. Richard was referred to Dr. David Evans*, a specialist in the management of foot complications from diabetes and wounds.

Diagnosis

In 2008, Dr. Evans made the diagnosis of bilateral peripheral neuropathy and a left Charcot foot, a morphologic change of the foot resulting from bone and joint destruction and deformities.[3] This resulted from Richard's lack of trauma perception, which led to multiple fractures resulting in a change of shape of the foot. This morphologic change resulted in a plantar ulceration.

Richard underwent 4 months of total-contact casting to stabilize the bones of the left foot, allowing them to heal such that the shape of the foot was preserved, particularly the arch. Total-contact casting protects the foot, allowing the bones to heal, and offloads pressure from affected areas to allow ulcers to heal. In addition, regular debridement of the wound and surrounding callus was undertaken.

After the fractures had healed and the ulceration closed, Richard was referred to a Canadian Certified Pedorthist – C Ped (C) – for ongoing pedorthic management of the foot. The aim was to provide ongoing pressure relief from bony prominences in order to protect the feet, particularly the left foot, and prevent new fractures and ulcers. Richard met with Hugh Williams,* C Ped (C), to be assessed for insoles and appropriate footwear that would protect the foot and allow Richard to resume his routine activities.

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John Embil is the coordinator of the Diabetic Foot and Complicated Wound Clinic at Winnipeg Health Sciences Centre, Winnipeg, Manitoba.

*Names have been changed.

A number of foot problems are preventable through education and regular foot care.

Interventions

At their first meeting, Williams set 3 main goals: (1) protect the foot; (2) build the integrity of the feet to help prevent new fractures or ulcers; and (3) get Richard back to his routine activities.

To prevent ulcer recurrence, Williams offloaded new pressure points on Richard's feet that had developed as a result of the fracture. Richard's regular footwear, including his steel-toe boots for work, was also modified to meet his lifestyle needs. In addition to these interventions, Williams met regularly with Richard to make ongoing adjustments to his footwear and custom-made total-contact orthotics to optimally protect the foot.

Williams also instructed Richard on how to inspect his feet for evidence of callus, ulcerations and infection. He has frequently liaised with Richard's healthcare team about foot-related concerns.

Key outcomes

Over the past 3 years, Richard's pedorthic management has included ongoing assessment, education, shoe fitting, shoe modifications and orthotic fabrication and adjustments. This has occurred in collaboration with his physicians, wound care specialists and other specialized healthcare providers.

Today, although Richard is still at risk of foot-related complications related to diabetic neuropathy and requires ongoing treatment, his feet, in particular the left foot, remain relatively stable. His wounds have healed and the morphologic abnormalities of his feet have not progressed. Richard is back to his regular activities, including his job as a shipper-receiver.

Conclusions

Dr. Evans regularly prescribes pedorthic management for patients as part of their overall diabetes healthcare regime. Pedorthists are trained to troubleshoot shoe-fit issues for people with diabetes and can reduce the risk of amputation by assessing the structural features of the foot. Additionally, pedorthists are able to alleviate the effects of lower-limb and foot abnormalities through orthotics and shoe modifications. This can help prevent foot problems before they even begin.

Williams recommends that all people with diabetes should either regularly inspect their feet themselves or have their feet examined by a family member or caregiver. In addition, regular foot care and appropriately fitted footwear are vital to preventing foot complications.

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Teaching Wound Care in Northern Canada – It Sure Taught Me!

A 2-day trip to the North gave the author a whole new perspective on the meaning of healthcare

BY
Nicole Hodgkinson
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Wound Healing

I am an occupational therapist and wound consultant from Edmonton, Alberta. In addition to working in an acute care hospital for a transdisciplinary, plastic surgery wound care service, I am passionate about providing wound care education tailored specifically for nurses, allied healthcare professionals and physicians. In January 2011, I was referred to the Fort Smith Health Centre in the Northwest Territories – a town just north of the Alberta border with a population of 2,500. They requested a 2-day wound education course designed for a small group of healthcare staff, which included a nurse practitioner, a nursing student, registered nurses, licensed practical nurses, nursing attendants and an occupational therapist.

I prepared my slides and case studies, gathered

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The group celebrates their success after the compression bandaging workshop.

Snowy days sustain throughout March in the Northwest Territories!

some samples, packed my warmest clothes and headed to the airport. I'd flown many times in the past, but never directly from the tarmac in a small, 14-seat airplane where you could watch the pilots steer through the sky. It was exhilarating!

I landed in the tiny Fort Smith airport and was picked up by Julie Lys, a nurse practitioner, tour guide, president of the local school board and true advocate for Aboriginal and Northern cultures. In my first hour there, she took me on a tour through the town and all of its sights, and then booked me into my hotel. She also invited me to join her and her family for the events of the Spring Carnival that weekend. To my excitement, I was going to be able to attend the Princess Competition, Talent Show, Feast, and Mad Trappers Ball with Jigging Contest. How amazing that I was going to be there for only a weekend and yet already felt as if I were part of the community.

The next morning, I headed to the health centre (actually, I took a taxi the 4 blocks because I thought my eyelids might actually freeze shut. I am such a "southerner!") I arrived at the health centre, confident that I would have some knowledge to impart to these lovely folks, and started my 2-day workshop. Little did I know that I would learn more from them about healthcare than I had in my entire career.

Relaxing after a long day of teaching!

As with any session, I started by defining the problem, spouting out the national pressure-ulcer statistics (around 25%), then turned to my audience – which included representatives from acute care, long-term care and home care – and asked about the pressure-

I was beginning to learn that my evidence-based strategies were meaningless to this community without the context of compassion and culture.

The author attended the Mad Trappers Ball. Also present was the Commissioner of the Northwest Territories (right).

The workshop became much more engaging and reciprocally educational as the participants volunteered information and applied the knowledge from my workshop content.

Teaching compression bandaging—a practical and motivating exercise.

ulcer rates in their community. They looked around at one another...and they all said, "None." So obviously I wasn't there to help solve a current problem; they wanted to *prevent* any future issues. What a novel concept.

When I got to the part of my session that occupational therapists love – positioning – I asked what their current strategies were. One residential care worker spoke up. "We have this one resident who spends many hours in her wheelchair. Every half-hour to an hour, we hug her for repositioning and for therapeutic touch." I was beginning to learn that my evidence-based strategies, like the "rule of 30" or the "forward lean" to offload in the wheelchair, were meaningless to this community without the context of compassion and culture. It made me think: Have those of us in large urban institutions lost the *care* in healthcare?

As the weekend went on and I blabbered on about the research, I realized that I would need the participants in the group to "translate it" in order to apply it to Northern culture and economics. The workshop became much more engaging and reciprocally educational as the participants volunteered information and applied the knowledge from my workshop content.

We covered a ton of information in our weekend – everything from principles of wound management and principles of pressure ulcer management to a lower leg workshop. Because the audience was so diverse, everyone took something different from it…and isn't that a great foundation for a multidisciplinary team? They all have a common baseline of knowledge and an overarching goal of doing what is best for the people in their town, and each has an understanding of the roles and responsibilities of the others. The best part was that no one was excluded based on level of education. Everyone learned to assess, how to create a moist wound healing environment, how to make offloading orthotics, how to do ABIs and how to wrap compression bandages. And, you know, the person with the most natural wrapping technique was the residential care worker from the long-term care centre.

If I were to summarize what I learned from the people in this seminar, it would be to remember to care, and never to assume. The North also taught me that maybe we over-think the complexity of our problems – they can prevent pressure ulcers with a hug, and call a taxi to help patients find their teeth or transfer to bed (no kidding). They utilize every team member to the fullest of his or her abilities, and they define roles based on the needs of the team, not professional silos. I think that, as much wound care as I taught them, the group at Fort Smith brought me back to where health*care* began.

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Defining the Ideal Compression System

"This product completely changed my life"

Paul's Story

Previously I used a three-layer wrap and I had a lot of discomfort with it. It would suffocate my calf and fall down so that I had to go back to the clinic frequently to have it reapplied. I'm an active man and spend 12 to 15 hours a day on my feet at work. I had invested in expensive shoes that I could not wear with the three-layer wrap.

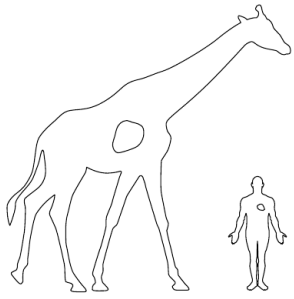
One day the nurse suggested a two-layer wrap (3M™ Coban™ 2 Layer Compression System). It was the best day walking out of the clinic with the two-layer wrap…and putting regular shoes on, and I only had to go in once a week to get it reapplied. It was very comfortable, and not at all bulky.

I recommend the two layer (3M™ Coban™ 2 Layer Compression System) to anyone who has to stand all day with an ulcer and persevere. I'm back on my feet with a smile and on the go again.

I trust the two-layer wrap. It completely changed my life and I'm a lucky man to have had the luxury to access it.

Paul Cribben, The Butcher Shop

Damage to the veins or valves may lead to unrelieved high venous pressure. Over time, venous hypertension causes pooling of fluid in the lower extremities, which results in edema. If not managed, venous hypertension will ultimately result in leg ulcers.



Anatomical illustration of giraffe and human showing location of the heart

The Ideal Physiology: Giraffe Skin

The distance between a giraffe's head and feet is twice that of humans, giving it venous blood pressure twice as high as ours. Giraffes also have relatively smaller calf muscles, do not have moving or bending toes and their ankle joint movement is minimal – yet they do not experience venous hypertension…

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"A rigid sleeve with an anatomical fit around 'the subject's' leg, which stays in place and provides a well tolerated pressure at rest" defines an ideal compression system.
-Jan Schuren, RgN, BN, MSc, inventor of 3M™ Coban™ 2 Layer Compression System

3M has applied this principle to 3M™ Coban™ 2 Layer Compression System, to consistently provide the right amount of compression to reduce edema.

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