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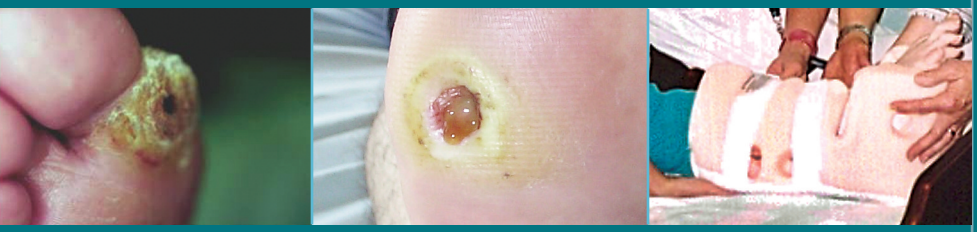
Wound Care CANADA

THE OFFICIAL PUBLICATION OF THE CANADIAN ASSOCIATION OF WOUND CARE



Developing a Therapy Bed Assessment Tool

Canadian Association of Wound Care
Association canadienne du soin des plaies

Canadian Publication Mail Sales Product Agreement No. 40065546

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1) Principles of best practice: Minimising pain at wound dressing-related procedures. A consensus document. London: MEP Ltd, 2004 Downloadable on www.tendra.com

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A Collaborative Process

Sue Rosenthal

Putting together a magazine like *Wound Care Canada* is no easy task, as you can probably imagine. First, we have to make decisions about what we'd like to see in each issue, making sure we balance topics, specialties and even geography. Next, we need to approach potential authors and evaluate submissions and ideas that have been sent in. Once a line-up has been decided upon, we need to encourage and sometimes cajole authors to get their articles in on time and at the requested length. In the meantime, ads are being sold. Once articles have been edited for the first time, they are sent to our Scientific Advisor and Editorial Board, who review them and provide the authors with comments and suggestions. After the authors have had a chance to incorporate the review results, we put each article through several more levels of editing. It is a time-consuming but necessary process that serves to support the authors and present our readers with the best information available.

"Each issue of Wound Care Canada *... serves to ... present our readers with the best information available."*

When I say "we," I am speaking of a very dedicated team. I won't name them all now—you can see them listed in the masthead on page six—but I will point out the contribution of one very special individual, without whose support and guidance *Wound Care Canada* would never have come to be. Shane Inlow, the founding Scientific Advisor for the magazine, has just stepped down. All of us at *Wound Care Canada* would like to extend our deepest gratitude for his endless hours and unflagging enthusiasm and offer our very best wishes to Shane.

Sue Rosenthal, Editor

Sue Rosenthal, BA, MA, specializes in health and wellness communications and has been associated with the CAWC since 2000.

Un processus de collaboration

Mettre sur pied un magazine comme *Wound Care Canada* n'est pas une tâche facile, comme vous pouvez sans doute l'imaginer. Tout d'abord, nous devons prendre des décisions concernant le contenu de chaque numéro en veillant à équilibrer les sujets, les spécialités et même la géographie. Il nous faut ensuite prendre contact avec les auteurs potentiels et évaluer les textes et les idées que nous avons reçues. Une fois la mise en page bien définie, nous devons stimuler les auteurs, et parfois les cajoler pour qu'ils livrent leurs articles à temps et de la longueur requise. Entre-temps, on vend de la publicité. Après une première révision des articles, nous les envoyons à notre Comité de rédaction et de conseillers scientifiques, qui les révise et fournit aux auteurs des commentaires et des suggestions. Après avoir donné aux auteurs la chance d'incorporer les modifications à leurs textes, nous soumettons chaque article à plusieurs autres niveaux de révision. C'est un processus qui prend du temps mais qui est nécessaire, car il permet d'aider les auteurs et de présenter à nos lecteurs la meilleure information disponible.

« Chaque numéro de Wound Care Canada *sert à présenter à nos lecteurs la meilleure information possible. »*

Quand je dis « nous », je parle d'une équipe très dévouée. Je ne les nommerai pas tous ici–ils sont inscrits au bloc-générique de la page 6–mais je soulignerai la contribution d'une personne très spéciale, qui a fourni le soutien et les conseils sans lesquels *Wound Care Canada* n'aurait jamais vu le jour. Shane Inlow, conseiller scientifique fondateur du magazine, vient tout juste de nous quitter. Nous tous, de *Wound Care Canada*, aimerions exprimer à Shane notre profonde gratitude pour sa somme de travail incalculable et son enthousiasme indéfectible, ainsi que lui offrir nos vœux les plus sincères.

Sue Rosenthal, Rédactrice

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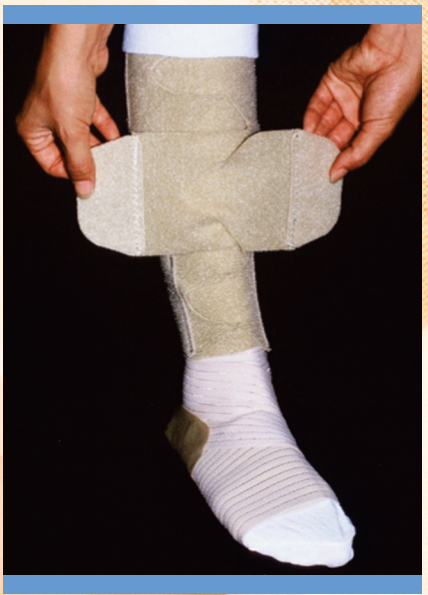

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Canadian Association of Wound Care / Association canadienne du soin des plaies

Volume 2, Number 2

ISSN 1708-6884

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.

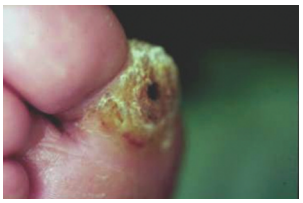
The CAWC was formed in 1995, and its official meeting is the CAWC annual conference held in Canada each year. The association's efforts are focused on five key areas: public policy, clinical practice, education, research and connecting with the international wound-care community. The CAWC works to significantly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

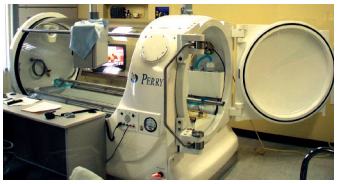
L'Association canadienne du soin des plaies est un organisme sans but lucratif regroupant des professionnels de la santé, des gens de l'industrie, des patients et des membres du personnel soignant fortement intéressés à l'avancement des connaissances pour le soin des plaies au Canada.

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.

Features

CLINICAL PRACTICE





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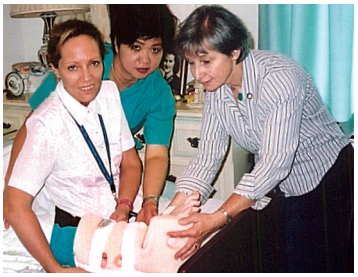

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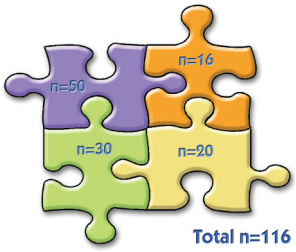

EDUCATION

More features ▶

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CAWC Events

Tenth Annual Conference Celebrating the Advancement of Wound Care

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CAWC Seminar Series

will be held next spring in Calgary, Ottawa and Quebec City. Dates to be announced in January on the CAWC Web site.

Other events

For other wound-related events, please visit the CAWC Web site.

News From the Corporate World of Wound Care

MIP Inc. Offers a New Solution for Pressure Relief

It is called the AccuMax Quantum pressure-relief surface from BG Industries. It is a therapeutic support surface that combines self-regulation with an alternating pressure technology. It provides dynamic pressure relief with or without the use of an electric pump. Please call Gabriel Bordman at 800-361-4964 or 514-356-1224 for futher information.

Quart Medical Introduces the Zassi BMS

Quart Medical introduces the Zassi Bowel Management System (BMS), the first and only device cleared by the FDA for diversion, containment and collection of the fecal output of non-ambulatory patients. The Zassi BMS was designed by a colo-rectal surgeon to atraumatically reside in the rectum and is cleared for up to 29 days continuous placement. The Zassi BMS is a powerful new weapon in the fight against hospital-acquired infections by protecting patients and caregivers from the negative effects of potentially harmful stool. This will protect a patient's skin integrity, improve wound healing, decrease spread of enteric organisms and reduce caregiver exposure to harmful organisms contained in stool. Contact Michael Quart at quartmedical@rogers.com.

The Hollister HeelBoot™ Pressure-Relieving Heel Device

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Miracle of the Conjoined Twins

Dr. Kenneth Salyer, Plastic Surgeon at Medical City Dallas Hospital, managed a team of over 50 specialists in the intricate separation of the Egyptian conjoined twins named Mohamed and Ahmed. This year is the 10th anniversary of the CAWC, which also marks the 10th anniversary of VAC Therapy in Canada. In celebration we are honoured to bring to you Dr. Salyer, who will be joined by Dr. Argenta and Dr. Morykwas, the co-inventors of VAC Therapy, as guest speakers at KCI Medical's Lunch and Learn on Sunday, November 14, at the CAWC Conference in Calgary. Dr. Salyer will discuss the life-changing surgery of these two brave young boys and how the participation of KCI Medical impacted their lives. Dr. Argenta and Dr. Morykwas will address the evolution of VAC Therapy from past to present.

Education

Canadian Enterostomal Therapy Distance Education Program

The Canadian Association for Enterostomal Therapy offers a bilingual distance-education program with a focus on wound, ostomy and continence. For further information, please contact CAET Professional Assistant at 905-270-8963 or via e-mail at caet@on.aibn.com.

Third Congress of the World Union of Wound Healing Societies. June 2008

At the recent meeting of the World Union of Wound Healing Societies held in Paris, France, Canada was awarded the opportunity to host the Third Congress, in June 2008. The site of the meeting will be Toronto, and Dr. Gary Sibbald will be the conference chair. The theme is "Wound Care: Efficacy, Effectiveness, Efficiency" with a focus on translating knowledge into practice. The University of Toronto Department of Medicine, in co-operation with North American wound healing societies, will host the meeting.

When you see the Web Connect icon associated with an article, look for more information on the CAWC Web site at www.cawc.net. Click on *Wound Care Canada*.

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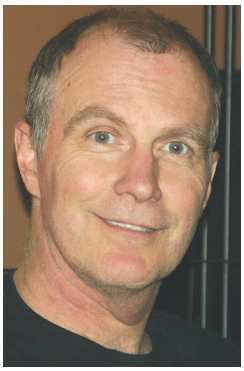
The 60–second Foot Exam
for People with Diabetes



BY Shane Inlow

When it comes to the rate at which medical professionals checking the feet of people with diabetes (PWD), the results are very disappointing. Although no real "excuses" have been offered for this gross oversight, I suggest that the very ordinary business of medical professionals being too busy and seeing too many patients is most likely to blame in most cases.

Certainly, an hour (or more) can be easily spent doing a history and physical on a PWD. Even then, the foot aspect of the exam can be cursory. To ensure a more complete exam, I suggest piecing together existing information, then combining it with a "targeted" physical and a fast screen called "The 60-second Foot Exam for PWDs." This screen employs a series of four questions that David Armstrong[1] showed to have a very high, positive correlation to foot problems if even one answer is "yes" [Editor's note: see our interview with Dr. Armstrong on page 26 of this issue].

While asking these questions, simultaneous exams can be performed as described in Table 1.

The "physical" part of the exam should proceed in the following manner.

Look at the Feet/Shoes:

Skin: Dryness is the most common problem that cascades to serious concerns. Cracks along the heels often become portals of infection. Initial treatment with a moisturizer containing 10 per cent lactic acid helps remove the callous build-up while re-hydrating the skin. This acid cream should be stopped after two to three weeks of use, and the switching to a simple moisturizer should be made.

Shoes: A proper fitting, low-heeled shoe is very important in PWDs. A poor fitting shoe is often the initiator of serious foot problems. The shoe needs to be wide, deep and long enough; often a good running shoe is the best investment. A shoe needs to have a removable insole so orthotics can be fitted if needed, as well as a cushion sole for shock absorption. Establish a referral link to a local shoe store that is interested in fitting high-risk individuals.

Structure: A quick glance at the foot at rest and in weight-bearing will tell you if the foot anatomy is normal or not. X-ray when in doubt, or refer, especially if there is pain associated with redness.

TABLE 1

The 60-second Foot Exam for People with Diabetes

	Questions	Physical Exam
First 15 seconds	Are your feet ever numb?	Look at the feet/shoes. Visually examine the foot for skin condition, colour, callouses, toenail condition and structural deformities.
Next 15 seconds	Do they ever tingle?	Palpate the foot for temperature and ROM in general, (but of the big toe specifically).
Final 30 seconds	Do they ever burn? Do they ever feel like insects are crawling on them?	Check for sensory intactness, especially light touch using a 10-gram monofilament.

Shane Inlow, MD, is a founding Director of the CAWC, the founding Scientific Advisor for *Wound Care Canada* and was the Medical Director of the Geriatric and High Risk Foot Clinic in Calgary for 10 years. He is now retired and living in Calgary.

Palpate:

Feel for temperature, as pedal pulses are often difficult to palpate and can be misleading. A "bounding" pedal pulse will usually be seen as normal, when often it can represent advanced pedal arteriosclerosis with calcification. The range of motion (ROM) at the ankle often shows a reduced dorsi-flexion. The ROM of the big toe will often be limited as in hallux rigidus or hallux limitus. If there is a callous under the first metatarsal head (MTH), it will lead to an ulcer very quickly and needs prompt action/referral. Often, this callous will already be the top of an ulcer, called a sub-keratotic hematoma (see Figure 1). Sharp debridement of the callous is needed, along with pressure downloading (shoe or orthotic modifications).

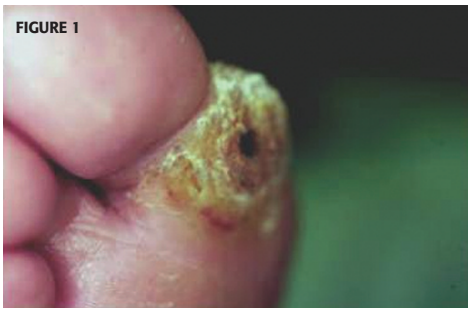


FIGURE 1

Sensory Exam:

The Web link to the LEAP program site provides instructions for a sensory exam of the foot, and even offers free monofilaments and patient hand-outs (www.bphc.hrsa.gov/leap/default.htm).

Although there are limitations to the 60-second Foot Exam, the effectiveness of the questions, along with the results of the brief physical, should identify nearly all PWDs at risk for foot-related morbidity. This exam should be a minimum standard for any health-care professional when seeing a PWD who has not already developed a high-risk status. By identifying risk earlier on in the disease, one hopes this will allow for greater preventative strategies and reduce the morbidity of foot disease in PWDs.

Reference

1. Armstrong DG, Lavery LA, Vela SA, Quebedeaux TL, Fleischli JG. Choosing a practical screening instrument to identify patients at risk for diabetic foot ulceration. *Archives of Internal Medicine*. 1998;158:289-292.

Developing a Therapy Bed Assessment Tool

BY Kathryn Kozell

Therapeutic mattresses and bed frames are designed to provide either pressure reduction or pressure relief in situations where skin integrity or other physiological systems are in jeopardy of potential or actual injury. One of the greatest challenges for the clinician is to select the most appropriate product for a patient's specific individual demands. The experience of St. Joseph's Health Care London, in identifying the multiple risk needs of patients, institutional requirements and using an interdisciplinary team approach for developing a therapy bed assessment tool may serve as a useful model for other facilities.

There is a heightened awareness among health-care professionals to seek out the best possible products that will provide the most efficient and effective therapeutic response. This has been well demonstrated with the vast selection of wound-care products available to meet the specificity of any wound. In the treatment of pressure-related skin injuries, specialty beds, perhaps surprisingly, are not a new supportive device. In *A Historical Perspective on Specialty Beds and Other Apparatus for Treatment of Invalids*[1] a medical report from way back in 1585 cites the "successful use of a down cushion in concert with a program of nutrition, hygiene, and pain relief for a pressure ulcer." In today's world of therapeutic mattresses, manufacturers have responded with many therapeutic pressure devices; however, the decision-making process leading to the appropriate selection of *the right mattress for the right patient* can be as challenging as the presentation of any wound.

Kathryn Kozell, RN, BA, BScN, MScN, ACNP/ET, is an Acute Care Nurse Practitioner/ Clinical Nurse Specialist in surgery at St. Joseph's Health Care London in Ontario. She has been an Enterostomal Therapy Nurse since 1981. She is also a member of the CAET and CAWC.

Therapy Bed Task Force

Our facility established the Therapy Bed Task Force, a nursing initiative that was composed of various clinicians representing the intensive care unit, orthopedics, family medicine and palliative care, as well as an acute care nurse practitioner/clinical nurse specialist/enterostomal therapy nurse in surgery, a purchasing representative from materials management, and a territory sales manager from the contracted company from which the therapy beds were being rented. The mandate of this team was threefold: 1. investigate and identify the pattern of therapy bed utilization within the health centre; 2. develop and implement a system that would monitor and provide consistent and effective therapy bed utilization; and 3. control the financial allowance dedicated to therapy bed rental.

Doughty, Fairchild and Stogis[2] referred to a three-phase decisional approach regarding the use of replacement mattresses. Using this approach in a slightly modified process, our team concluded it was important to determine the following:

1. who was using the therapy bed
2. what the selection criteria were
3. what therapy bed would then be selected for implementation

Results of the Task Force

The Task Force identified that there were high-demand therapy bed units (the intensive care unit, orthopedics and family medicine/palliative care) and low-demand therapy bed units (general medicine, general surgery—

TABLE 1

Clinical Diagnoses/Characteristics

Medical	Surgical	Critical Care
Dermatitis	Flaps, grafts	Hemodynamically unstable
Oncology	Draining wounds	Comatose
Paralysis	Sepsis	Positional intolerance
Multiple ulcers	Multiple ulcers	Sepsis
Multiple fractures secondary to pathology	Multiple bone fractures	Large abdominal wounds
	Failed grafts	

primarily the vascular population). Once the patient-care areas were recognized, it was then critical to determine and analyze the patient demand, (essentially, what diagnoses or health-care patterns were patients presenting that warranted a therapy bed?). Table 1 identifies the patient clinical characteristics for each of the high/low demand areas.

Documentation Development

During this period, the health centre's nursing documentation was undergoing redesign to reflect Marjorie Gordon's Functional Health Patterns.[3] The typology of the functional health patterns provides an assessment framework for identifying a patient's health pattern profile. To be consistent with both the documentation policy of the health centre and the overall nursing documentation system, the Therapy Bed Task Force adapted five of Gordon's 11 functional health patterns as the overall framework for the assessment tool (see Table 2). The task force added a sixth and seventh health pattern, ***Mobility-Exercise*** and ***Integumentary***. Integumentary was specifically added, rationalizing that the skin, as the largest organ—being multifunctional and subjected to varying degrees of threat and injury—was deserving of its own category.

The creative aspect of developing the therapy bed assessment tool came with identifying the range of "health responses" within each of the assessment health patterns. This was accomplished by combining patient characteristics within each of the high- and low-demand units with the clinical descriptors as found in the Braden Scale for Predicting Pressure Sore Risk.[4] Each functional health pattern category now had three to four descriptors, which described a range of health demands (from free of functional health demands to very complex functional health demands). A score of zero (no risk) to eight (multiple risks) was assigned to each of the health responses.

The territory sales representative of the bed company contracted to our region was instrumental in providing the task force with information about each of the therapy mattresses available. The clinical data to support their function, anticipated outcome and specific features given the health demand of the patient were reviewed and incorporated into the tool. An assessment score was developed that further identified the type of therapy bed for the score range.

Continued on page 14

TABLE 2

Modified Gordon's Functional Health Patterns

(with sixth and seventh categories added)

- Health–perception–health management patterns
- Nutritional–metabolic pattern
- Elimination pattern
- Activity–exercise pattern
  - Sleep–rest pattern
  - Self perception–self-concept pattern
  - Role–relationship pattern
  - Sexuality–reproductive pattern
  - Coping–stress-tolerance pattern
  - Value–belief pattern
- Cognitive–perceptual pattern
- Mobility–exercise
- Integumentary

References

1. Levine JM. A historical perspective on specialty beds and other apparatus for treatment of invalids. *Advances in Wound Care*. 1994;7(5):51-54.
2. Doughty D, et al. Your patient: Which therapy? *Journal of Enterostomal Therapy*. 1990;17(4): 154-159.
3. Gordon M. *Nursing Diagnosis: A Process and Application*. McGraw-Hill. 1982.
4. Bergstrom N, et al. The Braden scale for predicting pressure score risk. *Nursing Research*. 1987;36(4): 205-210.

TABLE 3

Therapy Bed Assessment Tool (TBAT)

PO #	Room #
Date Bed Received:	Ht.: Wt.:

Assessment	Recommended Bed Type	
0–5	**Not Recommended – Conservative**	
6–10	**First Step Select**	
11–15	**Therakair**	Max. 200 lbs. ambulatory, pressure relief, edema, pulsation mattress
	Kinair	Max. 300 lbs., non-ambulatory, advanced pressure relief, no pulsation
16–20	**Therapulse**	Max. 300 lbs., non-ambulatory, advanced pressure relief, edema, pulsation
ICU only	**Biodyne**	Max. 300 lbs., rotation, wider bed, deeper cushion, advanced therapy relief
	Triadyne	Kinetic rotation, percussion, vibration, pulsation, pressure relief
Safety/Management	**Barikair**	Wt: 350–850 lbs.

Risk Factor Assessment	Date / Score	Wk. 1	Wk. 2	Wk. 3
Health Management Pattern				
Free of major non-active health problems	0			
Intractable pain, grafts, myocutaneous flaps	1			
PVD, failed grafts/flaps, edematous, septic, fractures	2			
Hemodynamically unstable, chest trauma, CVA, neurological conditions, ventilatory instability	3			
Activity-Exercise Pattern				
Ambulatory without assistance	0			
Up in a chair, confined to chair/wheelchair	1			
Bed rest	2			
Mobility-Exercise Pattern				
Independently moves extremities	0			
Two turning surfaces available	1			
One turning surface available	2			
Immobile	3			
Elimination Pattern				
Full bowel/bladder control, no diaphoresis	0			
Either bowel/bladder incontinence, or diaphoresis	1			
Bowel and bladder incontinence, no diaphoresis	2			
Bowel and bladder incontinence and diaphoresis	3			
Integumentary				
No skin breakdown	0			
Stage I–Epidermis intact, reddened	2			
Stage II–Blistered, epidermis break, more than two ulcers, moderate to large draining wounds	4			
Stage III and IV–Ulceration to tendon, bone, muscle	8			
Nutritional-Metabolic Pattern				
Nourished–adequate food/fluid intake, weight stable	0			
Malnourished–limited oral intake, dehydrated, obese, cachectic, IV therapy, enteral supplements	1			
Supplemented–no oral intake, TPN	2			
Cognitive Pattern				
Alert, oriented x 3	0			
Confused, disoriented, responds to visual, verbal, pain stimuli	2			
Comatose (no visual, verbal, pain response)	3			
Total Score				

Nurse's Initials

Upon completion of the assessment tool, the clinician calculates a total score, which provides a recommendation for the type of therapy bed appropriate for the patient being assessed (see Table 3).

Therapy Bed Assessment Tool Development

The outcome was a Therapy Bed Assessment Tool, which is designed to guide the clinician through a systematic process of assessing the patient through each of the seven functional health patterns. The operational word here is "recommended." The clinician must still use his or her judgment to match the needs of the patient with the recommendation, always leaning toward maximizing the patient's potential with the therapy bed and supporting those areas the patient and staff cannot meet together.

There are certainly limitations to this tool, as it was designed with the acute-care perspective only and it has never been put through the rigours of being tested for reliability or validity. However, it has reinforced that the prescriptive nature of a therapy bed shows that it is not "a luxury item" but is an important and necessary variable in the overall treatment plan, which is grounded in science and research.

Note to readers: The printing of brand names in the assessment tool does not in any way indicate an endorsement by the Canadian Association of Wound Care or *Wound Care Canada* for any of the products listed. Brand name inclusion was permitted to preserve the original intent of the tool.

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L'oxygénothérapie hyperbare systémique

dans le traitement des plaies réfractaires

PAR
Richard Belley

François Paquet

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Au Canada, 1,5 à 2 millions de personnes sont atteintes de diabète, ce nombre représentant environ 5% de la population.[1,2] Les complications du diabète sont variées et touchent plusieurs organes. La neuropathie périphérique est la cause majeure des ulcères diabétiques avec toutes les conséquences économiques, sociales et psychologiques qui en découlent.[11] Entre 5 et 15%[8,9] des patients diabétiques développeront éventuellement un ulcère au niveau des pieds.[2,3] Ces ulcères seront responsables de 85% des amputations des membres inférieurs, le diabète demeurant la première cause d'amputation des membres inférieurs.[3,8,9]

L'oxygénothérapie hyperbare (OHB)

L'oxygénothérapie hyperbare se définit comme l'administration d'oxygène à 100% dans un environnement sous pression. Ce traitement demeure physiologiquement attrayant vu l'augmentation de l'oxygénation tissulaire. L'hémoglobine ne pouvant transporter plus de quatre molécules d'oxygène par molécule, le total d'oxygène transporté est donc de 20,4 ml d'oxygène par 100 ml de sang au maximum à l'air ambiant. La partie dissoute d'oxygène dans le plasma est seulement de 0,31 ml d'oxygène par 100 ml de plasma sanguin. Par contre, sous environnement hyperbare, il est possible d'atteindre des taux de 5,2 ml d'oxygène par 100 ml de sang à 2,4 ATA (atmosphère absolue) soit le niveau de traitement utilisé le plus souvent. Ces niveaux permettent d'obtenir des taux d'oxygène tissulaire suffisants pour permettre la reprise du processus de guérison chez les patients sélectionnés où une ischémie tissulaire locale demeure la principale raison de non guérison.

Hyperbaric Oxygen Therapy
for the Treatment of Refractory Wounds

Abstract

The purpose of this article is to examine in greater detail an adjunctive therapy for refractory diabetic ulcers: hyperbaric oxygen therapy, a therapeutic approach that can be combined with the standard treatment. The experience gained in our community has helped us to better identify, assess and treat diabetic ulcers by combining hyperbaric oxygen therapy with standard treatments. First and foremost, we must remember that basic care is the cornerstone of any treatment approach to diabetic ulcers. It is therefore essential to put emphasis on the need to adhere strongly to basic principles so that each complex wound clinic can optimally control each factor that can be related to a delay in healing.[3,5,6,9,10] One single oversight will make us waste a lot of time. That's why the general message to convey should be *"no small wound is minor on a diabetic foot."*

Web Connect

An English version of this article is available in the *Wound Care Canada* section of the CAWC Web site at www.cawc.net.

On note, par exemple, des patients avec des valeurs au laboratoire d'oxymétrie transcutanée de moins de 10 mm Hg en distal et augmentant sous hyperbare à plus de 200 mm Hg. Nous savons que l'un des principaux facteurs pour stimuler les fibroblastes à produire du collagène est un environnement avec oxygène ; voilà une des raisons pouvant expliquer l'amélioration notée chez ces patients.[25]

En résumé, voici les principaux facteurs reliés à l'oxygénothérapie hyperbare ayant démontré un effet :[24,25,26,27,28,29,30,31]

- Correction intermittente de l'hypoxie tissulaire ;
- Réduction de l'œdème local par vasoconstriction locale. Le tout, en maintenant une capacité pour délivrer de l'oxygène aux tissus supérieure à l'état sans oxygénothérapie hyperbare ;
- Augmentation de la réponse de l'hôte :
  - Augmentation de la réponse des macrophages dans le processus de phagocytose ;
  - Effet direct de l'oxygène sur les bactéries anaérobiques ;
  - Suppression de la production des exotoxines par certains types de bactéries ;
- Augmentation du métabolisme de l'ulcère :
  - Augmentation de la réplication des fibroblastes et de la synthèse de collagène ;
  - Épithélialisation ;
- Prévention des impacts négatifs reliés à la reperfusion (reperfusion injury), processus lié aux leucocytes ;
- Induction des récepteurs cytoquiniques et de la cytokinine :
  - Angiogénèse ;
  - Augmentation de la fonction des ostéoclastes et ostéoblastes.

Plusieurs articles ont pu démontrer l'impact clinique de ces notions physiopathologique.[17,26,27,28,29,30,31,32] Rappelons, en dernier lieu, que l'oxygénation hyperbare ne remplacera jamais les soins de plaies de base.


Appareil d'oxymétrie transcutanée

Bien que notre clinique de plaies complexes nous permette de voir plus de 500 nouveaux patients par année aux prises avec un ulcère de pied diabétique, moins d'un patient sur cinquante environ, s'avère éligible aux traitements en oxygénothérapie hyperbare.

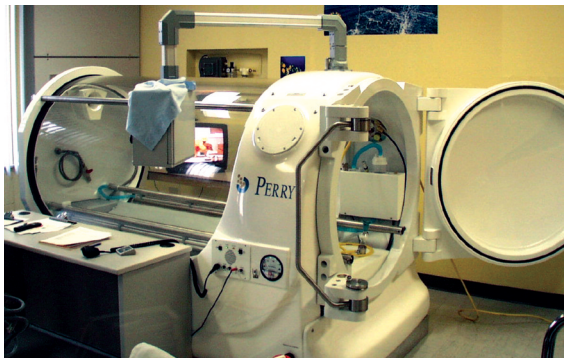
Évaluation vasculaire préalable à l'oxygénothérapie hyperbare (OHB)

Il arrive fréquemment que, malgré tous nos efforts, l'état de la plaie stagne sans que nous ne soyons capables de définir le facteur non contrôlé. L'atteinte circulatoire macro et microvasculaire n'est plus à démontrer dans le processus des patients diabétiques.[2,3] Lors de l'investigation pour connaître l'état des vaisseaux, le laboratoire vasculaire est la première étape (après la mesure de l'indice cheville/bras) pour évaluer la présence d'une insuffisance vasculaire périphérique du membre inférieur. Le laboratoire vasculaire comprend la mesure des pressions segmentaires de la jambe et l'utilisation du doppler. Il n'est toutefois pas rare que ces résultats soient faussement rassurants ou difficiles à interpréter principalement en raison d'une non compressibilité des artères calcifiées chez le patient diabétique. Rappelons que l'évaluation diagnostique initiale dans une clinique doit débuter par la mesure de l'indice cheville/bras. Dans la littérature, il est entendu qu'un indice inférieur à 0,6 laisse suspecter une maladie périphérique distale plus sévère;[2,3] il se peut toutefois que le résultat soit faussé comme nous venons de le mentionner. D'autres tests peuvent alors être effectués pour vérifier la présence et l'étendue de la maladie avant de procéder à une évaluation plus extensive telle l'angiographie; mentionnons, entre autres, les mesures de pression à l'orteil, les mesures transcutanées de la pression partielle d'oxygène ($PtcO_2$) et les mesures Duplex.

Bien que peu disponible au Québec, l'investigation par oxymétrie transcutanée permet d'évaluer l'état de la vascularisation et de la perfusion du point de vue microvasculaire. La consultation avec un chirurgien vasculaire devient pertinente si des anomalies importantes dans les résultats physiques ou de laboratoire sont observées. Le laboratoire d'oxymétrie transcutanée nous permet de donner les exemples de résultat suivants :

- Les valeurs normales se situent au-delà de 50 mm Hg.[16,17]
- Des valeurs de 35 à 40 mm Hg sont considérées comme suff isantes pour assurer une guérison adéquate du côté apport en oxygène.[17,18,21,23,24]
- Une valeur de $PtcO_2$ inférieure à 20 mm Hg indique un risque 39 fois plus élevé de non guérison.[15,21,24]

- Les patients ayant subi une amputation avec des valeurs de $PtcO_2$ > 40 mm Hg ont un bon taux de guérison, de 20 à 40 mm Hg une guérison plus difficile et < 20 mm Hg un mauvais taux de guérison.[22,24,25]
- Les patients diabétiques avec des valeurs de $PtcO_2$ au niveau trans-métatarsien > 30 mm Hg ont un potentiel de guérison 8 fois plus grand comparativement à ceux qui ont des valeurs < 30 mm Hg.[23,24]



Caisson hyperbare duoplace

L'artériographie du membre inférieur demeure quand même le « gold standard » pour l'évaluation du système artériel surtout lorsqu'une chirurgie est envisagée. Cet examen demeure tout de même assez invasif et son utilisation est limitée par le risque d'insuffisance rénale aiguë secondaire à l'injection de produit de contraste chez ce type de clientèle souvent atteinte d'un certain degré de néphropathie. L'artériographie présente également comme avantage la possibilité de procéder à une angioplastie lorsque jugée nécessaire. L'IRM et les nouvelles générations de Tomodensitométrie (TDM) permettent également d'évaluer, jusqu'à une certaine mesure, l'arbre artériel du membre inférieur, l'Angio-IRM ayant l'avantage d'utiliser le gadolinium, substance de contraste n'étant pas ou très peu néphrotoxique.

Le traitement

Le traitement d'un ulcère du pied diabétique peut paraître simple à prime abord mais se révèle être, à peu de chose près, un art dont la base repose sur une équipe multidisciplinaire possédant une expertise en soin des plaies. Il faut garder en mémoire qu'il est courant que la plaie devienne chronique dans cette catégorie de patients et que cet état de fait augmente significativement le risque d'infection, d'ostéomyélite ou ultimement d'amputation.

Les principes généraux du soin des plaies sont :

1. contrôler la douleur;[3]
2. débarrasser la plaie des tissus morts par une méthode de débridement adaptée;
3. contrôler l'humidité et l'environnement par un pansement adapté ;
4. éliminer la mise en charge au niveau de la plaie;[10,12]
5. traiter l'infection si nécessaire;
6. établir une fréquence appropriée pour le suivi et le changement de pansement avec le personnel soignant à domicile (via le CLSC) et le médecin en soin des plaies.[13]

Évidemment, avant toute chose, il faut s'assurer que la problématique vasculaire soit réglée par chirurgie (pontage) ou par angioplastie. De la même façon, une plaie présentant un retard de guérison et une oxymétrie démontrant une ischémie sans possibilité de revascularisation, peut possiblement bénéficier d'oxygénothérapie hyperbare.

Pour compléter l'information, nous vous suggérons l'excellent article, portant sur le pied diabétique, écrit par Inlow S., Orsted H., et Sibbald G., dont on peut retrouver le texte sur le site du CAWC (www.cawc.net).

Note de la rédaction : Une liste exhaustive de références pour cet article est disponible dans la section *Wound Care Canada* du site Web de l'ACSP à www.cawc.net.

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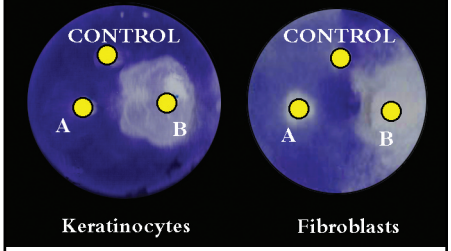

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Nutrition and Wound-care Management/Prevention

BY Theresa A. Hurd

"[Nursing] ought to signify the proper use of fresh air, light, warmth, cleanliness, quiet and the proper selection and administration of diet—all at the least expense of vital power to the patient." Florence Nightingale, 1859

Today's clinical setting involves a critical dependence on technology and the rapid advancement of health-care practice. Existing medical techniques are readily disposed of and replaced with more technological approaches in every area of medicine. Wound care is no exception. However, nutrition, a fundamental and by comparison almost rudimentary approach to medicine, continues to be essential in dealing with wound-care management.

Florence Nightingale defined the nursing role as "preparing the patient for the most favourable condition for healing." Nurses today remain in this crucial preparatory role in the healing process. Nutritional supplementation and additions to your patient's diet are crucial in preventing unnecessary wound complications and promoting or accelerating wound healing.

Malnutrition is a common occurrence in the chronically ill, hospitalized and aging populations, and one that is relatively easy to both diagnose and manage. Reports have stated that more than 85 per cent of long-term-care patients and 40 to 50 per cent of hospitalized patients are currently malnourished.[1] Although illness or injuries are major contributing factors to the development of malnutrition, other possible contributing factors must also be identified and integrated into the patient's holistic assessment.

Patients with wounds are often hospitalized, elderly and/or chronically ill. Health-care teams responsible for wound management are required to recognize malnutrition in these patients and be able to monitor and manage any malnutrition.

Nutritional Management Objectives

The nutritional management of the patient with a wound must

- provide adequate calories
- prevent protein–calorie malnutrition
- promote wound healing.

Early Interventions

Oral supplements should be considered as an early intervention. There is a great benefit in encouraging and achieving oral feeding whenever possible. Eating and the ability to take food orally has been proven to provide comfort, pleasure and a sense of autonomy and dignity in the individual.

Malnutrition is defined as a deficiency of essential nutrients or the improper absorption and distribution of essential nutrients. The most serious type of malnutrition is protein-energy malnutrition (PEM). PEM is defined as the inadequacy or impaired absorption of both protein and energy. This condition will worsen when combined with malabsorption of fat, impaired carbohydrate utilization or increased stress and illness. PEM may develop quickly over a few months or gradually over a few years. Protein deficiency is extremely detrimental as each molecule of protein is indispensable and essential in all cell production and in maintaining homeostasis. PEM causes the body proteins to break down for glucogenesis, reducing the supply of amino acids needed for maintenance of body proteins and healing.[1,2,3,4]

There is a direct correlation between wounds that are non-healing and the indication of PEM. Wound pre-

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Web Connect

More detailed information on the factors to consider when your patient is not eating is available on the CAWC Web site at www.cawc.net.

vention and healing depend on the reversal of PEM along with good wound management.[2,5] Wound healing (the replacing of injured tissue and new tissue production) demands an increase in energy consumption. Wound healing also requires additional consumption of particular nutrients, specifically protein and calories. Wound healing is unachievable without having these nutritional needs met and is highly dependent on angiogenesis, which will, in turn, be suppressed if these needs are not met. In addition, the restoration of perfusion will be negatively affected. The fibroblast, the most important cell in the proliferative stage of wound healing, exudes products composed of only protein or peptides (collagen matrix, proteoglycans and glycosaminoglycans, cytokines and growth stimulants), which are essential to wound healing.[6,7]

The exudation of these vital nutrients in wound healing invariably causes a hypermetabolic/catabolic state that further increases nutritional demands. It is often the wound itself that instigates serious, detrimental malnutrition in patients. The breakdown of protein from muscle is required for all essential wound-healing functions as well as an intact immune system. An infected pressure ulcer also increases tissue damage, causing further strain, a deeper ulcer and an increase in nutritional demands. Studies have shown that increasing protein in the diet of patients with chronic ulcers has generated faster healing times when compared with low protein diets.[2,3,8]

The early intervention and careful monitoring of your

Watch for Patients who Need Nutritional Assessment

Indicators of the need for nutritional assessment include

- weight loss >5% or more
- meals eaten less then 50%/two meals a day/refusal to eat a meal/refusal to eat for more than three days
- poor appetite, consuming 1/2 or less at two or more meals/day for three days
- nausea or vomiting for more than three days
- loss of skin integrity
- laboratory values with nutritional implications outside of normal range (albumin, prealbumin, transferrin, hemoglobin, WBC and electrolytes)
- poor fluid intake of less than 1,500 ml fluid/24 hours over past seven days
- chronic infections (respiratory, urinary tract, etc.)

TABLE 1

Principles of Nutrition and Wound Care

Principle	Sources	Increase	Supplement
Calories Kcals are important to sustain proper nutrition. Caloric needs increase with stress or injury	• All food and beverages contain a varying number of Kcals, with the exception of water, coffee, tea and diet beverages with no nutritional value	• Portion size if appetite is good • Butter, gravy, cream and any other foods rich in calories as tolerated, as fats are essential for cell membrane and are calorically dense	• Nutritional shakes, smoothies, powder, oral supplements
Protein Important to sustain proper nutrition; muscle mass, immune response and skin integrity	• Meat, fish, poultry, eggs, dairy products, legumes, seeds, nuts, grains	• Encourage full portions of protein at every meal. • Double protein portions. • Offer high-protein snacks. • Offer high-quality meats rather than processed meats.	• Nutritional supplements, including shakes, smoothies, powders (such as milk powder, soy powder), oral supplementation and protein-dense supplements
Hydration	• Water, juice, milk, Jell-O, sherbet, ice-cream, yogourt, pudding, soup, popsicles, any other liquid except caffeinated beverages	• Use 250 ml glasses instead of 125 ml glasses at each meal. • Offer non-caffeinated beverage before caffeinated beverages.	• If unable to take fluids orally, consider IV fluids.

Source: Breslow et al[11]

The E's of Nutrition

Often, initial and repetitive encouragement at mealtime is needed to increase nutrition in the elderly. Some tips to increase nutrition are as follows:

- **E**ncourage full portion consumption of all protein foods.
- **E**ncourage food likes, and eliminate food dislikes.
- **E**ncourage a sitting or upright position for eating.
- **E**ncourage time for chewing, self-feeding (e.g., finger foods) and meal completion.
- **E**ncourage optimization of the environment.
- **E**ncourage frequent drinking of fluids.
- **E**nsure resident has dentures and/or mouth care as required for meals.

patient is crucial in the acceleration of tissue repair.

The frail and aging population, in particular, is highly susceptible to both PEM and wounds of every degree and nature.[9] The importance of concentrated care of these wounds must not be diminished. It is vital to the patient that preventative measures and wound management be implemented to ensure good health and quality of life. For various reasons, nutritional interventions are often difficult for this population, particularly in long-term-care facilities, where care of the very frail elderly often takes place. Large volumes of supplements are often difficult for the frail elderly, and administration is time-consuming for staff. These complications illustrate the importance of careful product-supplementation selection.

A holistic assessment and collaboration with the dietitian and multidisciplinary team to identify possible etiology and dietary requirements is a key component in providing nutritional care to the geriatric patient with a wound. Functional changes specific to the geriatric patient and certain disease processes, such as Parkinson's, require a multidisciplinary approach. The speech-language pathologist is an

TABLE 2

Guidelines for Nutrition

Skin Integrity	Protein	Fluids	Calories
Intact Skin Preventative Wound Care	• 0.8–1.0 gm pro/kg	• 30 cc/kg per day of fluid	• 30 Kcal/kg per day
Partial Thickness Stage I and II Pressure Ulcers Skin Tears and Arterial Ulcers (one to two wounds)	• 1.2–1.5 gm pro/kg	• 35 ml/fluid/kg	• 35 Kcal/kg per day • Multivitamin + minerals
Full Thickness Stage III and IV Ulcers	• 1.5–2.0 gm pro/kg	• 35–40 ml/kg fluid per day	• 40 Kcal per day • Multivitamin + minerals
Severe Wounds IV Pressure Ulcers/Burns	• Up to 3.0* gm/pro/kg	• 40 ml/kg per day	• 40+ Kcal/kg per day • Multivitamin + minerals
Multiple/Non-Healing Hypoalbuminemia (27 g/L or less) Pre Albumin (0.10 g/L or less) Venous Ulcers and Multiple or Non-healing Stage II Ulcers	• 2.0–3.0* gm Pro/kg	• 40+ Kcal/kg per day	• 35–40 Kcals/kg • Multivitamin + minerals

Sources: Demling and Leslie[2], Torun and Cherv[4], Zagoren[5], Breslow, et al.[11]

* While literature has shown improvement in healing with increased protein intake, it is wise to recommend that caution be taken when increasing intake to high levels of protein in the elderly. The elderly have a decreased ability to process high levels of protein in the absence of hydration. It is therefore imperative that each patient be assessed on an individual basis by the dietitian and the multi-disciplinary team to determine the amount of protein/hydration required.

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essential team member and is required for proper feeding and swallowing assessment.

High-protein formulas are often intolerable because of the volume required to meet the needs of the geriatric patient with a wound, although many of the latest protein-dense formulas meet their requirements in smaller volumes. Studies show that when a geriatric patient loses weight, his or her ability to regain that weight is extremely difficult.[2,10] It is therefore vital that weight be monitored carefully with the geriatric patient and early intervention be implemented to avoid weight loss.

Teamwork

"The key elements in the art of working together are how to deal with change, how to deal with conflict and how to reach our potential … the needs of the team are best met when we meet the needs of individuals persons." — Max DePree

It is vital to have effective communication with your co-workers, the dietitian and, most importantly, with the patients themselves or the patients' families. All must work together as a wound-management and care team to deliver the best care possible. The nutritional plan, and ensuring that supplementation is implemented, involves participation by all team members.

Albumin Levels

Albumin is the major circulating protein as well as the major contributor to oncotic pressure for both cellular and intravascular compartments.[5] Decreased levels of circulating albumin are indicative of PEM and will affect the healing process. The protein levels of patients are most easily attained using an evaluation of albumin. While albumin levels have a half-life of 12–21 days and are not an entirely reliable indicator for early nutritional deficits, they should be monitored as part of the nutritional assessment.

Guidelines for concentrations of the three nutritional essentials—protein, hydration and calories—should be integrated into policy and procedures along with the three principles of wound-care management: treat the patient, treat the cause and treat the wound.

Ensuring proper nutrition remains a fundamental medical practice that is essential to all aspects of health, including the prevention and care of wounds. The role of nutrition in preventing unnecessary wound complications and promoting or accelerating wound healing is well established. Nursing practice must include careful and ongoing monitoring of nutritional health as well as interventions to ensure nutrition is maintained, particularly in patients who are elderly and/or chronically ill.

TABLE 3

Vitamins and Minerals Important to Assist in Wound Healing

Zinc	Vitamin C	Protein	Vitamin A
Meat	Citrus fruits	Beef, pork, chicken,	Milk
Fish	Strawberries	Turkey, fish, lamb	Eggs
Seafood	Tomatoes	Eggs	Cheese
Liver	Potatoes	Liver	Fish
Eggs	Broccoli	Milk	Dark green vegetables
Beans	Cantaloupe	Cheese	Oranges
Whole-wheat products	Sweet peppers	Yogourt and milk products	Red fruits and vegetables
		Soy beans	

Source: Sizer and Whitney[13]

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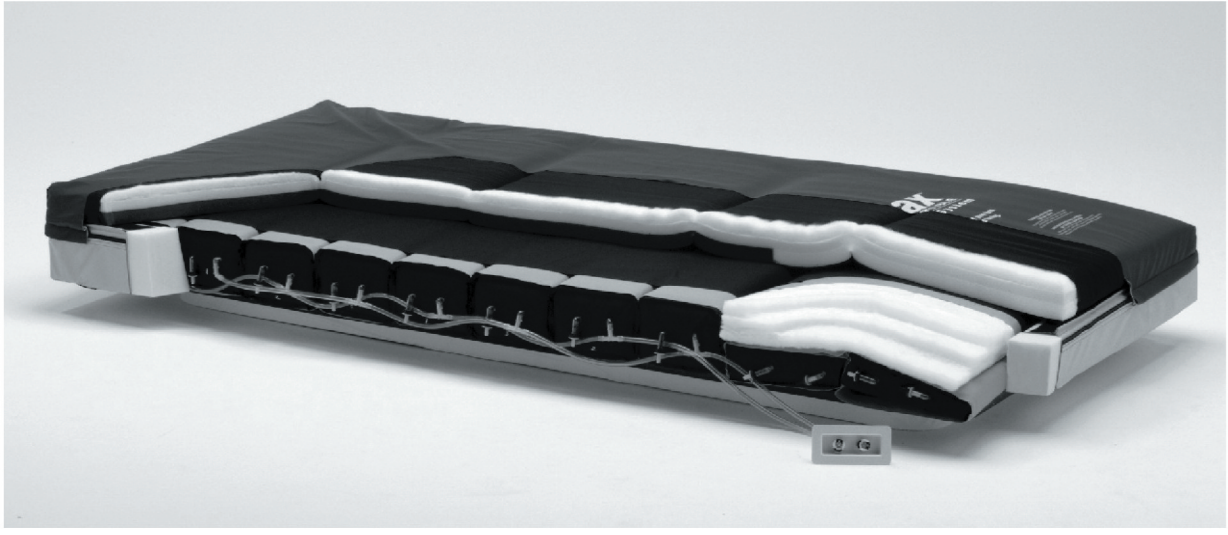

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An Interview with **Dr. David Armstrong**:

An International Leader in Diabetic Foot Management

Dr. David Armstrong

INTERVIEWED BY Catherine Harley, Associate Editor, *Wound Care Canada*

After graduating from The California College of Podiatric Medicine, Dr. Armstrong has held several positions in medical centres and universities in the U.S. and U.K. He also holds a Masters of Science in Tissue Repair and Wound Healing from the University of Wales College of Medicine and a PhD from the University of Manchester College of Medicine.

Dr. Armstrong is the U.S. director of the Diabetes Lower Extremity Research Group. He was selected as one of the first six International Wound Care Ambassadors and is the immediate past Chair of Scientific Sessions for the American Diabetes Association's Foot Care Council, as well as a member of the National Board of Directors of the American Diabetes Association.

Q What is your current job title?

Professor of Surgery, Chair of Research and Assistant Dean, Dr. William M. Scholl College of Podiatric Medicine at Rosalind Franklin University of Medicine and Science, Chicago.

Q How long have you been in this role?

In fact, I have just started this position. I left a wonderful several years in Tucson, where I was fortunate to work with my friend and colleague Dr. Brent Nixon to develop what has now become a truly fine diabetic-foot research unit.

Q What does your current job entail and how does it relate to wound care?

I look at my position as "Chief Inspiration Officer." In other words, I'm the luckiest foot doctor on the planet. I have the wonderful opportunity to work with students, residents and faculty, who are far smarter than I am, to figure out better ways to fix feet and heal wounds.

Q What inspires you to come to work each day?

I can't think of a day that I didn't want to come into work. What inspires me is the opportunity to inspire. Our profession has a desperate dearth of mentors. The opportunity to serve as one is, I believe, the greatest honour anyone could have. That's why, when the alarm clock rings, I'm probably already in the shower.

Q How did you get involved in diabetic foot research?

I was always interested in the diabetic foot. However, one patient comes to mind that really set it off for me. She was a lovely lady who was, quite literally, just off the plane from India. She had both leprosy and diabetes, and she presented with a small diabetic foot wound under her forefoot. It was my first day in clinic as a resident, and I thought I knew everything.

I remember beginning to debride her wound and realized that I hadn't even considered anesthetizing her. I took a step back and looked at this woman—who was peaceful as can be and completely pain-free—and had an epiphany. I realized (as so many others previously had realized) that we are born and conditioned to respond to pain. This is true of patients as well as health-care providers. The real challenge is responding to the absence of pain. I knew then and there that this was the area of medicine I wanted most to explore.

Q Any "top tips" for health-care professionals caring for patients with diabetic foot problems?

I could say only that the treatment of the absence of pain (and its sequelae) is the most challenging but ultimately rewarding area in which to practice. To the young practitioner: never, ever lose your enthusiasm. This is what keeps you, as my friend Dr. Gary Sibbald is fond of saying, "treating the whole patient rather than a 'hole' in the patient."

Q How has the management of diabetic neurotrophic ulcers changed since you got involved?

There has been an enormous

change technologically, even over the last decade. However, this has not led, in any real sense, to a reduction in amputations. The reason for this is quite simple: we have put the therapeutic cart before the therapeutic horse. We must concentrate on the central tenets of care in these patients—debridement and offloading—before we decide what to put on the wound. This mantra is bandied about at every single meeting that I attend; however, it rarely is followed as well as it should be followed. This is because we, as practitioners, compromise. We compromise in the way we debride and in the way we offload. No technology—no matter how promising—will overcome this problem. This is a problem not necessarily with education but with implementation. That is why we see large differences between clinics, often even in the same geographic region. I believe that, once this issue is resolved, many of the extraordinary technologies we now have available (and ones we will soon have) will lead to results that will be gratifying to us, our clinicians and our public health authorities.

Q Which wound-care meetings and conferences do you attend and why?

I must say it seems like I attend them all. Sometimes the most important thing one can do in terms of professional growth is just to show up.

Q Which Web sites do you use the most?

Pubmed (www.ncbi.nlm.nih.gov/entrez/query.fcgi).

Q What would make the management of diabetic foot ulcers even better?

A dose of common sense, as we have discussed above.

Q How will new technology influence the future of diabetic ulcer management?

I believe many of the most promising technologies lie not in ulcer management but in prevention. We are finding impressive results through the use of computerized activity monitors, which allow us to dose activity as we do a drug, and thermometry, which helps us spot potentially dangerous inflammation before it is palpable or obvious. These, coupled with more widespread community-wide risk-assessment, are what will lead us most dramatically to a reduction in amputations. I am hugely excited about the next five to 10 years. It is an absolutely great time to be involved in medicine in general, in wound care specifically and diabetic foot care especially.

The High Intensity Needs Program

Improving Wound O for Long-term-care R

BY Patti Barton

Patti Barton, RN, PHN, ET, works as an Enterostomal Therapy Nurse in the Greater Toronto Area. As a skin, wound and ostomy consultant, her primary practice focuses on long-term-care facilities but also includes acute care and the community. Other professional activities include the Professional Standards Committee of the CAET. She is also a contributor to CAWC and WCET, an expert panel member for three RNAO Best Practice Guidelines and a board member for CAET and a community health centre.

Flash back to 1998 when our news was filled each day with stories of hospital crises—emergency room staff were strained and unable to meet demands and needed to turn people away. The (Ontario) provincial government investigated and declared that the problem was due to a backlog of senior citizens who tied up acute beds while awaiting treatment or placement. But with critically short funding, the long-term-care (LTC) facilities were powerless to resolve the problem, since many had to (and still do) manage severely ill residents at a fraction of the per diem allocated to acute care. The Ministry of Health developed a plan to upgrade long-term-care funding to allow for additional services, products and staffing to support the LTC patient in staying in his/her residence. This would avoid the need for hospitalization, thereby freeing up acute beds for the other populations. Thus, the basis for the High Intensity Needs (HIN) Program began.

The Ministry policy guidelines advised that the HIN Fund would be used to purchase or rent high-cost items such as materials, equipment, professional services and assessments not previously accessible to LTC. Additionally, training to support interventions would be provided to support essential treatment or to prevent hospitalization.

Funding provision was extended until patient status stabilized, staff could be taught special interventions, intensity of needs reduced or until treatment could be managed by LTC staff. Important outcomes of this funding support have been realized. Facilities are required to assure that staff have core knowledge of skin and wound issues or special procedures to meet residents' needs. Through access to advisory resources, the provision of education to enhance staff skills and knowledge has increased. Thus, facilities are aided to meet their mandate and to assure that provision of an expanded standard of care is accomplished.

Resources that directly or indirectly impact on wound care that were covered by the funding include wound-care products, supplies, and equipment for severe wounds and skin conditions; protective supplies; a variety of supplemental or replacement feeds and equipment, including oral, enteral and parenteral feeding equipment and supplies; and equipment and supplies to support vital processes and manage pain.

Ongoing Assessment

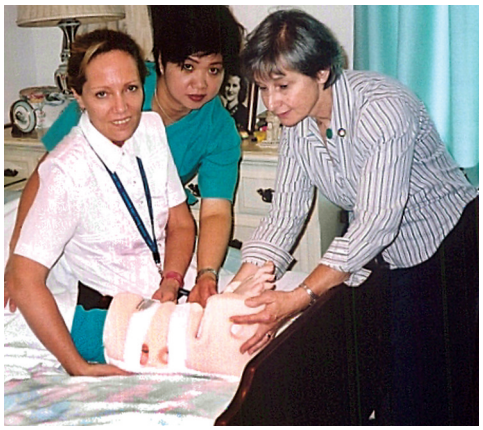
The overseers of costs and requests are Ministry Compliance Advisors (Ministry HIN division employees, who have nursing backgrounds), whose mandate is to ensure, through the review of applications and periodic re-analysis, that costing requests are reasonable and targeted to outcomes.

Assessments are done by clinicians, who, armed with appropriate expertise and a current knowledge base, make recommendations to the physician for cost-effective treatments that promote recovery and minimize risk of deterioration. ET nurses whose focus of specialty includes skin and wound issues and those advanced practice nurses whose practice and training is also specialized in wound management are the clinicians involved in these clinical assessments for HIN funding.

Improved Outcomes?

Care for the residents of long-term-care facilities has

In Ontario utcomes esidents



Team collaboration on customizing a localized pressure-relief device.

expanded. Now, five years into the program, what changes in outcomes can be identified?

The High Intensity Needs Program has been a huge endeavour, with many existing and new facilities accessing its funding support. Some facilities are fairly small and managed by a close network of staff and administration. Others have as many or more beds than some acute-care facilities. Some difficulties do exist within the plan. With the explosion in the number of new facilities, hiring and retaining staff can be problematic as the general nursing-shortage increases. Also, the program is optional, and there remain a few facilities that choose not to utilize it, either due to lack of knowledge or frustration with the process. The paperwork can be daunting and the funding slow until the facilities develop their documentation skills and the Compliance Advisor is assured the goals are being met. The commitment of administrators to the program has grown out of necessity, but with it comes their ability to share their success with partners and prospective clients.

Although research studies in the region have not yet been able to keep pace with the rapidly growing demands of the High Intensity Needs Program, clinical cases and anecdotal evidence strongly indicate successes and improvements in care within facilities using the program. Some of these include

- consistent use of a skin risk-assessment tool; Braden or facility developed
- skin assessments regularly done
- enhanced awareness and attention to skin risk-factors by care providers
- greater utilization of Best Practice Guidelines, both in prevention and treatment
- provision of more effective skin-care products
- greater availability of pressure-reduction mattresses, ranging among facilities from some to all their beds
- greater access to pressure-relief surfaces for treatment
- government response to advocacy for addressing pressure ulcers at earlier than Stage IV, now allowing Stage III and complex Stage II ulcers
- Ministry awareness increasing of the variety of wound and skin issues that require interventions to prevent hospitalization
- prompt interventions by facility staff and alerting of wound advisor when their regular skin assessment identifies changes
- reduced incidence rates being noted by internal reviews
- higher incidence of new ulcers from acute-care admissions than from internal incidence
- collaborative interdisciplinary care with complex information made available to aid the physician
- wound-related pain managed better through awareness, dressings and pain management programs
- trend toward modified use of topical antibiotics as first treatment choice
- increased consideration of issue of unsterile vs. sterile and of need to access sterile products for complex wounds
- external consultations sought to better manage complex situations, aiding in preventing or delaying hospitalization
- increased interest of companies in addressing the needs of LTC and offering additional support

Continued on page 30

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Continuing Challenges

Through the High Intensity Needs Program, the expanded knowledge and capacity of the staff have led to a greater sense of empowerment. But challenges remain. Because the population in LTC is predominantly elderly people with multi-system illnesses and compromised healability or whose disease is end-stage and irreversible, it is recognized that not all wounds will heal. Palliative care—of which the effective management of wounds is a significant component—is an important aspect of care of the frail elderly. Added factors include bodily changes and deformities from arthritic or osteoporotic conditions that create new risk areas, lack of family resources to complement care, self-injury from dementia and agitation, and the right of the self-determined resident to refuse care if he/she chooses, often just as he/she did prior to LTC placement.

The focus of the Ministry of Health program is for treatment, not prevention, as this is considered the role of the facilities. Prevention also bears a cost, requiring the skill and ability of the clinician to determine appropriate, cost-effective interventions. Evaluations of wound skin and equipment products on trial bases can aid informed purchase decisions that best meet the needs of the resident population.

Improved Access to Resources

The High Intensity Needs Program promotes access to professional resources from many backgrounds. These include nurses specializing in pain, wound or mental health, plus other disciplines such as dietitians and physical, speech and occupational therapists. Wound and skin issues often have multiple factors to consider and require the interventions of a collaborative team. Interdisciplinary collaboration can be spontaneous or organized, aided by a common charting form. Many facilities call for the dietitian to be contacted whenever weight loss or a wound is identified. Less formally, the ET nurse and the dietitian, occupational therapist, physical therapist or equipment advisor may review case issues and needs related to wound etiology and discuss co-factors that the other(s) may be able to address. One example is as follows: seating problems that affect skin integrity may involve instruction to the health-care aide in relation to the use of pads, a time schedule for seating, review of protocols to inspect chair cushions or a request to the therapist to assess for a new device or protective foot pieces.

Consultation provides education to the many levels of care providers within a facility. Additionally, many wound consultants are actively providing more formal education sessions and programs to enhance the knowledge base of the staff nurses and support organizations. Education is key to making a difference. LTC nurses and physicians now access courses, attend conferences and work on skin committees with other professionals to establish proactive interventions based on best practice guidelines. These venues of pooled expertise make available non-biased information that can be evaluated by discerning care providers to aid in their care practices.

With the evidence that is surfacing, it is clear that research must proceed to further validate findings and to substantiate present clinical practice. Funding for research and education is clearly needed.

The Future

While we recognize that much has been accomplished, our challenge remains to assure that facilities develop suitable internal mentors to promote best practices within the facility. It is essential to maintain and grow interest while dealing with an increasing level of resident acuity. Resident numbers, based on demographic forecasts, are on the rise.

The High Intensity Needs Program has been responsive to its mandate of assuring the public that the needs of seniors in long-term-care facilities are being supported through this directed funding approach of serving as advocate and regulator.

Promoting the quality of life of the senior through addressing the changing physical, psychological and emotional needs is essential for this population, who often lack the ability to advocate for themselves. It remains in the professionals' scope to assure that these mandated requirements are working effectively, that we identify new or unresolved issues and advocate for these, and that we validate successes through research and publication so we are assured that this important population will continue to have access to the same appropriate resources and care that is available in other health-care sectors.

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Research 101:
Developing Critical Evaluation Skills

BY M. Gail Woodbury

Clinicians are aware that wound-care practice must be evidence-based, but often it is difficult to distinguish the quality of scientific evidence. In a recent article, Ryan et al.[1] provided an excellent outline of a strategy to search the literature for evidence on a particular topic in the management of wound patients. Other sources of evidence include colleagues, wound-care "experts," and the cursory perusal of the journal that arrives monthly. Sometimes, wound-care-company representatives will give clinicians a research article that promotes a particular product or intervention. In all of these situations, clinicians must decide if they believe that the product or intervention has merit. This requires a critical evaluation of the article.

One important aspect of critical appraisal is recognizing the research study design and appreciating its pros and cons. The appropriate study design is the one that provides a valid (true) answer to the research question—i.e., a design that minimizes bias to the greatest extent. The process of critically evaluating an article involves finding the answers to essential methodological and reporting questions. The study design and methodological quality dictate the assignment of literature to levels of evidence and, from these, the grade of recommendations for practice is determined. The overall goal of this paper is to help clinicians recognize good evidence so that they can apply it to clinical practice. The specific purposes are to present information about research study designs; present the link between study design, levels of evidence, and recommendations for practice; and discuss how to critically appraise individual articles about interventions using examples.

A goal in conducting research is avoidance of bias. Readers of research articles look for the perception of bias affecting research methods in choice of study design, selection of subjects, creation of treatment groups, application of experimental and control interventions, measurement of outcome, statistical analysis, interpretation and reporting of results. It should be noted that bias may be conscious or unconscious.

Clinical Study Designs

Numerous types of clinical studies are reported in the health-care literature to answer different types of research questions. There are two main classifications of study designs: observational and experimental, as shown in Figure 1. Observational studies are those in which a researcher documents naturally occurring events; in other words, no intervention is introduced. Experimental studies are those in which the researcher introduces an intervention (a program or therapy) and documents the effect.

Observational and experimental studies that involve one group—i.e., that do not have a comparison—are descriptive or uncontrolled studies. The lack of a comparison group means that conclusions cannot be made about the intervention being responsible for the outcome. Any observed change in the subjects' status could have occurred for other unknown and unmeasured reasons, such as the effect of time or the weather. Only two-group studies with an appropriate comparison group permit discussion of causal relationships. Examples of two-group observational studies are case-control and cohort studies, which are described below. A two-group experimental study is

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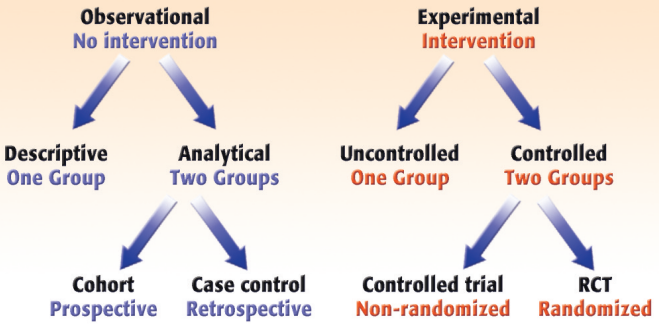
referred to as either a controlled trial or a randomized controlled trial (RCT) when subjects are randomly allocated to treatment groups.

Clinical study designs are described in this paper in relation to their potential use to evaluate an intervention, their ability to avoid bias, and the type of investigation for which they are best suited.

FIGURE 1

Types of Clinical Studies



A case study describes a single case and a case series describes several cases used to present, in detail, subject characteristics, an intervention and/or an outcome (something novel). They may be descriptive observational studies, but often they are uncontrolled experimental studies, published to describe an intervention. They are often done as an introductory step to establish an intervention. Intervention effectiveness cannot be determined using a case study or a case series.

Cross-sectional studies may be observational or experimental. They provide a snapshot of a sample where the intervention and outcome are determined at one point in time. Also, they are used to describe subject characteristics, an intervention, and/or an outcome—e.g., a prevalence study. Intervention effectiveness cannot be determined using a cross-sectional study.

Case-control studies are those in which two groups are identified: one group of subjects with an outcome of interest (cases), and an appropriate comparison group of subjects without the outcome of interest (controls). Both groups are reviewed retrospectively to determine the relationship of the outcome to intervention. These studies are considered to be retrospective because subjects are identified on the basis of an outcome. Then, preceding patient and care characteristics are accumulated, usually from records, to explain the outcome. One limitation of this type of study is the inadequacy of patient records, as the information contained therein has been obtained for a purpose unrelated to the research. Intervention effectiveness can be evaluated using a case-control study because there is a comparison group, but this is not the most rigorous study design for this purpose.

In a cohort study, a sample of subjects with a similar disorder is followed prospectively—e.g., patients with heel ulcers, who may be treated to differing extents or not treated with an intervention of interest. Outcomes are measured and compared in groups of treated and not-treated subjects. These studies are useful for identifying uncommon or adverse effects of treatments, or for assessing different approaches or changes in service delivery—e.g., an incidence study. They are useful to evaluate the outcome of treatment when an RCT is not possible. One limitation of this type of study is the lack of equivalence between the naturally occurring treatment groups, which might result in one group being favoured over the other in relation to the outcome. In other words, intervention effectiveness can be evaluated using a cohort study, because there is a comparison group, but this is not the most rigorous study design.

The RCT is considered the gold-standard study design for determining the value of an intervention by comparing it with a placebo or another therapy. A study population is identified; subjects are randomly allocated to intervention or control groups; appropriate blinding is used; the outcome of interest is measured in both groups and compared. Three of its features—

FIGURE 2

Randomized Controlled Trial (RCT)

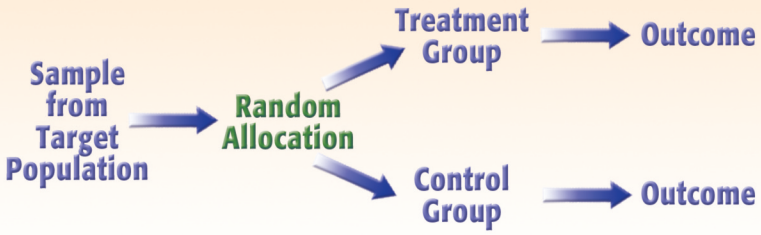
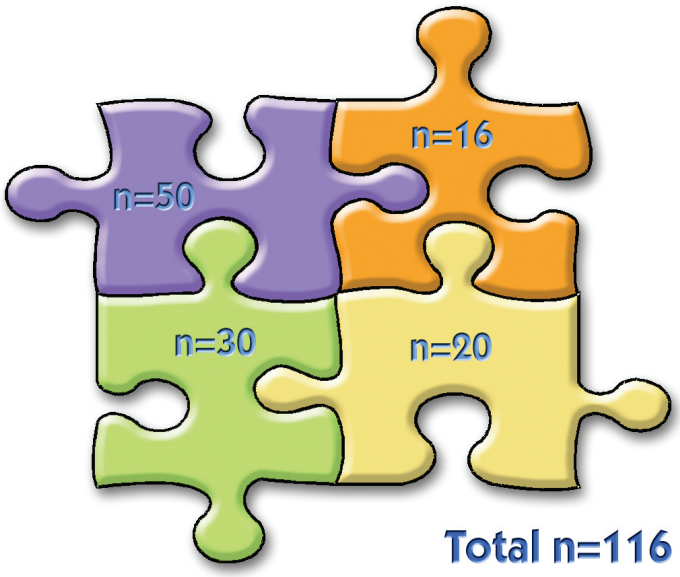


FIGURE 3

RCTs Collated into a Systematic Review Provide More Information

Each puzzle piece represents an individual RCT.



randomization, blinding, and tracking of all participants to the end of the study—help to make it the design that is most effective in minimizing bias. Prior to conducting the study, the required sample size that will detect a meaningful clinical difference and show statistical significance is determined. Random allocation to treatment groups is done to achieve a similar distribution of measured and unmeasured baseline characteristics in both groups.

Some people mistake systematic allocation (e.g., placing patients alternately into groups) as random. There are, in fact, specific requirements that must be met to refer to a study as random—i.e., randomization generated by computer, with the resulting individual subject allocation placed in opaque, sealed envelopes to ensure that no one on the clinical or research team could interfere in any way with the placement of individual subjects into groups. Blinding is used in RCTs to reduce bias; double-blind means that both patient and researcher are blind to (unaware of) treatment grouping. If it is not feasible to achieve double blinding, the next best alternative is blind assessment—i.e., the person who assesses outcome is unaware of the treatment allocation.

Systematic reviews of RCTs are considered to be even more important than individual or multiple RCTs because they provide a meticulously determined summary of information about the value of an intervention. They are distinguished from narrative reviews because they involve an explicit, formal method for locating, evaluating, selecting, assembling, synthesizing, analyzing and interpreting a body of research. If the studies are similar, the results can be combined statistically. This is called a meta-analysis. It may be useful to think of a systematic review as a puzzle in which each individual study is a puzzle piece. The complete review provides a clearer picture because the increased sample size provides more statistical power to detect a difference between groups (see Figure 3). Systematic reviews are powerful tools, but in many health-care areas, including wound care, there are few RCTs.

Levels of Evidence

Levels of evidence based on study design and methodological quality summarize the overall strength of the body of literature on a specific topic. The level of evidence determines the strength of recommendation for a clinical practice guideline or best practice statement as shown in Table 1.

TABLE 1

Relationship Between Levels of Evidence and Grades of Recommendation

Level of Evidence	Grade of Recommendation
Level 1: Large randomized trials with clear-cut results	A
Level 2: Small randomized trials with uncertain results	B
Level 3: Non-randomized trial, with controls	C
Level 4: Case series, no controls	C
Level 5: Expert opinion without critical appraisal	D

Adapted from Sackett[2]

Critical Appraisal of Individual Intervention or Therapy Studies

Suggested questions called "users' guides" have been developed to help clinicians critically appraise different types of articles. These have been published in *The Journal of the American Medical Association (JAMA).* Users' guides to articles about therapy [3,4] are the focus of this paper (as opposed to users' guides that address other issues such as prognosis, harm, diagnostic tests). The guides and discussion of the issues that they address are available at www.cche.net/usersguides/therapy.asp.

There are three general questions that are applied to all types of studies:

1. Are the results of the study valid?
2. What are the results?
3. Will the results help me in caring for my patients?

When appraising a study in which an intervention is evaluated, consider the questions listed in Table 2. The first six questions address the extent to which bias might have crept into the study, consciously or unconsciously, or if the results of the study reflect truth. The next two questions deal with the results and their variability. The final three questions guide us to reflect upon application of the results to our own practices.

A common reason to read research articles is to be aware of recent evidence to support a clinical intervention decision, such as the appropriate type of dressing to use. Two examples of recent evidence published in *Ostomy/Wound Management* in 2003 are presented. You may find it helpful to have a copy of these articles on hand while reading the following appraisals. The first, "A study to compare a new self-adherent soft silicone dressing with a self-adherent polymer dressing in Stage II pressure ulcers," described in its abstract as a randomized, multicentre,

controlled study,[5] illustrates the critical appraisal process using the users' guides. The purpose of the study was "to compare the new self-adherent soft silicone dressing to a commonly used hydropolymer dressing in the treatment of Stage II pressure ulcers."[5:p.45] The first thing to notice is that the purpose does not state the outcomes that are to be compared. The purpose states "compare the effects." It is important for

TABLE 2

Critical Appraisal Questions to Consider

Users' Guides for an Article about Therapy	Responses based on the article: *A study to compare a new self-adherent soft silicone dressing with a self-adherent polymer dressing in Stage II pressure ulcers*[5]
A. Are the results of the study valid?	
1. Was assignment of patients to treatments randomized?	Yes, "Participants were randomly assigned to one of the two treatment options by a predetermined, computer-generated, randomization list stratified by study, and the block size was unknown to the investigators. Each centre received numbered, sealed envelopes to be opened in consecutive order."[5: p.45] This is a very good description of appropriate random allocation.
2. Were all patients who entered the trial properly accounted for? Was follow-up complete?	Yes. Soft silicone group started with n=18; one died after baseline assessment. Hydropolymer group started with n=20; one died of broncho-pneumonia. Adverse devise effects and serious adverse events were reported for both groups. Aside from the two patients who died, there is no indication that any subjects were lost during follow-up.
3. Were patients analyzed in the groups to which they were randomized?	It appears that all subjects were analyzed in the groups to which they were randomized.
4. Were patients, health workers, and study personnel "blind" to treatment?	No, it is stated, "the study was not blinded because dressing differences make blinding difficult to achieve."[5:p.45] This is true and one of the potential sources of bias in this type of study.
5. Were the groups similar at the start of the trial?	Yes in Table 1[5:p.48] we are looking for differences that look important. Mean duration of ulcer, 13 weeks (maximum 52), was longer in the hydropolymer group than 8.3 weeks (maximum 24) in the soft silicone group. Since one of the outcomes measures (wound size) is related to healing, the longer ulcer duration in one group could provide a bias favouring the soft silicone group. However, in Table 25 (p.48) more subjects in hydropolymer group have granulation at baseline (19/20 versus 13/18). This observation favours the hydropolymer group. Is it possible these two observations balance each other?
6. Aside from the experimental intervention, were the groups treated equally?	Yes, we would assume so. There are not many details about the rest of the care except for pressure relief. "All patients except one had pressure relief for more than two hours per day."[5:p.46]
B. What are the results?	
1. How large was the treatment effect?	Tissue damage occurred significantly more often in the hydropolymer group. Only descriptive statistics (mean wound size, numbers of subjects) for the various wound characteristics were provided, so the treatment effects are not known. This means that you have to look at the numbers and somehow decide if they are different in the two groups.
2. How precise was the estimate of the treatment effect?	There was no discussion of precision (no 95% confidence intervals provided).
C. Will the results help me in caring for my patients?	
1. Can the results be applied to my patients?	You would need to decide if the sample was representative of your patients.
2. Were all clinically important outcomes considered?	Cost is an outcome that could have been investigated. Most of the other important outcomes were considered: wound size was obtained by tracing, and other wound variables were either present or absent. Although it was stated that "all wound assessments were made by the same health-care professional (a physician or nurse) throughout the study,"[5:p.45] the subjective nature of the wound outcome assessments is a potential source of bias.
3. Are the likely treatment benefits worth the potential harms and costs?	This is difficult to answer because the only apparent difference was in terms of tissue damage with the hydropolymer dressing. The cost of the dressings was not addressed.

you, the appraiser, to know what you are looking for when the outcome measures and results are described in the paper. For critical appraisal of this article, see Table 2 on page 36.

This study would have been improved (potential bias reduced) by

- incorporating an assessor who was blind to treatment allocation (often the logistics of doing this are prohibitive)
- the use of less subjective measurement of the outcomes
- sample size determination at the beginning to ensure sufficient statistical power
- statistical analysis of the outcomes

Nevertheless, this study has an appropriate study design—RCT—to evaluate an intervention. The critical appraisal shows that most of the methodological issues were handled well. Therefore, we should have some confidence in the conclusions reached by the authors. This author's rating: level 2 evidence, grade B recommendation.

The second example of recent evidence, "An evaluation of an adhesive hydrocellular foam dressing and a self-adherent soft silicone foam dressing in a nursing home setting"[6] is not an RCT. The study was described as a retrospective descriptive study.[6] Therefore, you will recognize that this is not the best design for evaluating these interventions. Subjects were not randomly allocated to achieve group equivalence. The study design is difficult to classify. Because it was described as retrospective, one expects it to be a case-control study, but comparison groups were determined based on intervention not on outcome. In fact, it is a cohort study in which retrospective review of charts was done to determine comparison groups based on dressing application and outcomes. Since data were retrieved from May 27, 1997, until June 18, 2002, and since the soft silicone dressing became available only after June 2001, the hydrocellular foam dressing group was much larger—n=1,643—versus the soft silicone dressing—n=162. In general it is preferable to have groups that are similar in size. In addition, when data for comparison groups are collected over the same time period, potential biases, such as changes in other aspects of wound care over time, may be avoided. In the study, 86 patients were treated with both dressings, which provided a situation in which patient variables were controlled and the dressings could have been compared. However, no comparisons within this group were presented.

In wound-care research it is important to note if patient or wound outcomes are reported. In this article, there were 1,891 patients but 4,200 wounds. The results were presented in terms of wounds. The best way to approach the problem of multiple wounds per patient is to select one wound per patient for reporting. It is obvious that factors that affect one wound of a patient will affect multiple wounds; therefore, the use of multiple wounds per patient introduces a bias and is against the rules for applying statistical tests. This is a fatal methodological flaw in the opinion of this author.

Critical appraisal of this article yields the responses indicated in Table 3 (see page 38).

The critical appraisal indicates that the results of the study are not valid, if we consider the article as a comparison between groups. Therefore, there is no reason

TABLE 3

Critical Appraisal Conclusions

Users' Guides for an Article about Therapy	Responses based on the article: *An evaluation of an adhesive hydrocellular foam dressing and a self-adherent soft silicone foam dressing in a nursing home setting.*[6]
A . Are the results of the study valid?	
1. Was assignment of patients to treatments randomized?	No
2. Were all patients who entered the trial properly accounted for? Was follow-up complete?	No (incomplete data: note differences in wound numbers within tables)
3 . Were patients analyzed in the groups to which they were randomized?	Wounds, not patients, were analyzed.
4. Were patients, health workers, and study personnel "blind" to treatment?	No
5. Were the groups similar at the start of the trial?	No
6. Aside from the experimental intervention, were the groups treated equally?	No
B. What are the results?	Not applicable
C. Will the results help me in caring for my patients?	Not applicable

to consider the size of the results or if they will help in caring for patients.

Potential conflict of interest must always be considered when research has been sponsored by a company, as the research has the potential of being biased.

This study has numerous issues that limit confidence in the results and conclusions. This author's rating: level 4 evidence, grade C recommendation.

Conclusions

Evidence-based practice results from consideration of the combination of

- ✔ good evidence
- ✔ clinical judgement
- ✔ patient values

Good evidence from studies that evaluate therapy is

- derived from clinical studies with appropriate study designs
- with clearly described methods
- with bias minimized or avoided, controlled, or acknowledged in study limitations
- with clear avoidance of conflict of interest

When good evidence is available, it should guide clinical practice. When only lower levels of evidence are available, clinicians need to be aware of this and adjust their clinical decision-making accordingly.

With practice, clinicians can improve their critical appraisal skills and ability to recognize good evidence. Setting up a study club with like-minded clinicians to discuss articles of common interest is one approach to making learning more fun and easier.

Editor's note: The levels of evidence and grades of recommendations in this article have been simplified for clarity. More detailed information that the author has used for this article can be found at www.eboncall.org/content/levels.html.

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Dr. David Keast Addresses Ethics in Wound Care: The Case of the Problematic Order

Dr. David H. Keast

David H. Keast, MSc, MD, FCFP, is at Parkwood Hospital, St. Joseph's Health Care, London, Ontario. He is President of the CAWC.

Q What do I do when I'm asked to participate in an activity I don't ethically agree with?

A The clinician has several options for dealing with such a conflict. The case study, below, can serve to illustrate possible strategies.

Case Vignette

You have been asked to see Mrs. Mary White, a 70-year-old woman with a right lower extremity ulcer who has been referred to home care for treatment. The order sheet requests saline irrigation, a hydrocolloid dressing and a four-layer bandage system changed twice weekly. When you remove Mary's bandage, you note some dependent rubor in the leg. The ulcer is over the medial malleolus and is shallow, quite fibrotic and appears punched out. As per your agency's lower extremity protocol, you do a screening ankle brachial pressure index (ABPI). The value is 0.4 in the right leg and 0.5 in the left leg. The waveforms are monophasic. Mary admits that she was previously a heavy smoker, but stopped after her heart attack five years ago. You are quite concerned about the requested treatment, as high compression therapy is contraindicated in a person with such a low ABPI.

Introduction

Health-care professionals are expected to behave in an ethical manner. By this, we mean behaviour consistent with a moral code or with accepted principles of conduct. In health care, one of those accepted standards is that we must first cause no harm.[1] In our case scenario, the application of the ordered therapy may in fact cause harm to the patient. At the same time, however, the clinician has an obligation to carry out the ordered treatment. How does the clinician then deal with this conflict? The process can be viewed to have several steps.

Assessment of Threat

The first step is an assessment of the level of potential threat to the patient. Will the ordered treatment cause immediate and serious harm to the patient? In our example, high compression therapy in a limb with poor arterial supply may cause limb-threatening ischemia and could result in the loss of the limb. This threat is immediate and serious, and the ordered therapy should not be instituted. Indeed, the clinician has a moral obligation to not implement the ordered treatment. Good and clear documentation explaining your decision is essential. On the other hand, had the order been to start saline wet to dry dressings, the threat is less immediate and less severe. While the ordered treatment is less than optimal by today's standards, it could be safely implemented while the clinician advocates for a better therapy. Once the clinician has determined that the ordered treatment is either dangerous or less than optimal, the next step is to seek a change, initially by moral suasion.

Moral Suasion

All health-care professionals believe that, above all else, they must do no harm. When approached in a professional and collegial manner, most clinicians will be grateful that a potentially serious error has been averted. In mature interdisciplinary teams, members expect this collegial support. In our example, the ordering clinician can be approached with the value of the ABPI and the information regarding

the contraindication for high compression therapy in patients with evidence of significant arterial disease. It is likely that the clinician will agree to a change in therapy. In less life- or limb-threatening instances, the moral suasion route may be more difficult. Again the professional should take a collegial and non-threatening approach. This may often be accomplished by providing the other clinician with information and allowing them to come to their own conclusions. This process respects our colleagues as thinking persons who want the best outcomes for their patients. It could also be accomplished by offering to continue the ordered treatment for a period of time and evaluating the effectiveness, while simultaneously obtaining agreement to try another approach if the ordered treatment is not effective. Once again, you should clearly document your assessment, the reasons for wishing to alter the therapy ordered and the strategies you have employed to facilitate change. If the direct approach is not successful then the clinician may have to enlist the help of a colleague or superior.

Consult a Colleague or Superior

It is always helpful to discuss an ethical dilemma with a trusted colleague or with your superior. Clearly, if you have made a decision not to implement a treatment that in your opinion poses a serious and immediate threat to the patient, you must notify and involve your supervisor. In less threatening dilemmas, your supervisor may be able to offer strategies to overcome the perceived problem and will be able to support your decision. One such strategy may be to enlist the help of a champion.

Enlist a Champion

We have moved a long way toward interdisciplinary and transdisciplinary care, but clinicians still tend to pay more attention to advice that comes from a trusted peer. In many instances, peers who have become knowledgeable in a certain clinical area have become change agents within their organization or profession. Identifying, supporting and cultivating these champions is a key strategy in changing practice patterns. If one wishes to reduce orders for saline wet to dry dressings, one should identify a sympathetic champion and enlist their help in changing to more interactive dressings. Champions may also assist on a one-to-one basis with specific issues with specific colleagues. Given the growing number of expanded-role nurses, champions need to be cultivated not only among physicians but also among expanded-role nurses. If all avenues of initiating change have been exhausted, one avenue remains: one can withdraw from providing what is deemed to be unsafe care.

Withdraw

No health-care professional can be required to provide care that they find to be unsafe or contradictory to their personal code of ethics. However, if one is going to withdraw from the provision of care, the clinician has an obligation to arrange for an alternative care provider. Clearly, this measure is a last resort and requires good documentation and support from your supervisor. It is also important that the health-care provider explain clearly to the patient their reasons for withdrawing from the provision of care and the alternate arrangements that have been made. In our case scenario, if all avenues had been exhausted and the ordering clinician continued to insist on high compression therapy, one could withdraw from provision of the ordered treatment with full support of your agency and supervisors, and care could revert to the referring clinician.

Conclusion

In our case scenario, the home-care nurse called the ordering clinician with the value of the ABPI and the contraindication to high compression therapy. The clinician was grateful for the information. Together, the clinician and the home-care nurse problem-solved and came up with strategies to further assess the patient's circulation and to provide interim care for the ulcer. The home-care nurse reported her success to her supervisor and documented the outcome on the patient's chart.

Reference

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Educating Peers—and Oneself—Through *Wound Care Canada*

Sue Rosenthal

If asked, the average wound-care clinician on the street could easily identify two of the benefits they receive from *Wound Care Canada*. Most would confirm that reading the articles provides information in an easy-to-understand format that can help them improve their knowledge and develop their skills as a clinician. Some would acknowledge that the information has led to changes in their practice. But few would identify a third way they can benefit from *Wound Care Canada*: by submitting an article.

Wound Care Canada articles are intended to educate clinicians and provide practical information that can be implemented into day-to-day practice. They are also meant to stimulate discussion and inspire further exploration. And while they are based on sound wound-care principles and undergo several review stages, they are not subjected to the rigours necessary for scholarly papers. We try to make the process friendly and supportive for authors.

Admittedly, the process of writing an article can be challenging and time-consuming, but the rewards can be significant. By submitting an article, you can

1. add to the existing body of wound-care knowledge
2. become known to peers outside your immediate milieu, which is an excellent way to network
3. gain additional insights into your topic as you prepare your materials for publication
4. develop your skills as a writer
5. inspire other clinicians to implement your ideas or to further investigate them
6. improve patient outcomes on a national scale

This issue's article by Dr. Shane Inlow is a case in point (see page 10). It is short, focused and very readable. Without doubt, many physicians will implement the 60-second Foot Exam with their patients with diabetes because of having read the article. Limbs, and perhaps even lives, will be saved as a result.

Do you have a story to tell? Yes, you do. You all do. There is not a wound-care clinician working in the country today who does not have information to share that would be valuable to colleagues across the country.

Call to Action

Articles submitted by authors with various backgrounds, specialties and from a range of geographical locations and clinical settings can only help to add to the quality and breadth of information for all our readers. As individuals within the caring community of wound-care professionals, we have an opportunity, and perhaps even an obligation, to share what we know. The ongoing professional development of everyone involved in wound care depends on all of us.

The approach we encourage our authors to take for articles in *Wound Care Canada* is to find ways to make sure the information is more easily implemented than that in academic papers. Therefore, articles should

1. be short; most articles are less than 3,000 words in length
2. provide case studies to illustrate applied principles
3. highlight learning points to simplify understanding
4. offer insight into challenges faced by clinicians—with or without solutions
5. share the experiences of those who are solving commonly experienced problems
6. be tailored for a Canadian audience

I strongly encourage you to consider contributing an idea or article to *Wound Care Canada*.

You don't have to do it on your own. Many of the articles in the magazine are written by two, three, or more authors. If you've never written a published article before, working with your colleagues is an especially good way to get your foot in the door, with support and encouragement.

To find out how to submit an article, visit the *Wound Care Canada* section of the CAWC Web site.

Sue Rosenthal, BA, MA,
is the editor of *Wound Care Canada*.

The North American Wound Care Council

BY Cary Steinman

At the recent Symposium on Advanced Wound Care (SAWC) meeting in Orlando, Florida, last May, the CAWC invited all the wound-care associations in North America to attend a special breakfast meeting. The purpose of this meeting was to discuss the joint development of a new international initiative: The North American Wound Care Council (NAWCC). All invited associations sent senior executives to the meeting, where the CAWC outlined the concept and facilitated the discussion. This was the first meeting specifically for North American wound-care societies to date.

The following associations were represented at the meeting: The American Association of Wound Care (AAWC), The Canadian Association of Enterostomal Therapy (CAET), The Canadian Association of Wound Care (CAWC), The National Pressure Ulcer Advisory Panel (NPUAP), The Wound Healing Society (WHS) and representatives from Mexico, who are currently working on establishing a Mexican wound-care association.

The NAWCC is an idea that the CAWC had been developing for the past 18 months. The NAWCC is not another symposium, congress or conference. It is contemplated as a biannual council of North American wound societies, the primary objectives of which will be to

- bring the officers, executives and committee heads from North American wound-care associations and similar bodies together every second year for meetings on topics of mutual interest
- facilitate communication between existing wound-care associations and similar bodies regarding international co-operation on the following topics: education, clinical practice, research, public policy, international initiatives and general management issues
- share information, ideas and resources to improve the quality of wound care in North America as well as the efficiency and effectiveness of participating societies
- develop initiatives to assist wound caring in less developed countries
- work together to ultimately improve patient outcomes and the day-to-day lives of North American wound-care clinicians

The NAWCC would meet every second year and would be hosted by a different participating society each time. Each society would be invited to bring a maximum of seven delegates, including the following personnel: president, executive director and committee heads for education, clinical practice, research, public policy and international initiatives.

All association executives in who attended the Orlando meeting voiced their interest in further pursuing the development of the NAWCC concept. It was decided to hold a planning meeting at the CAWC's annual conference in Calgary in November to develop a mission and vision statement for the new group as well as a charter, calendar and set of goals and objectives. The CAWC is very pleased to be hosting this inaugural meeting. To date all the associations who attended the Orlando meeting have agreed to send delegates to the first planning meeting.

We at the CAWC believe that this is a very powerful idea that can add significant value to the North American wound-care continuum. The outcome of the November 2004 meeting will be published on the CAWC Web site as well as the sites of the participating societies and will be printed in the spring 2005 issue of *Wound Care Canada*.

Web sites of participating organizations

American Association of Wound Care (AAWC) www.aawc1.com
Canadian Association of Enterostomal Therapy (CAET) www.caet.ca
Canadian Association of Wound Care (CAWC) www.cawc.net
National Pressure Ulcer Advisory Panel (NPUAP) www.npuap.org
Wound Healing Society (WHS) www.woundheal.org

Cary Steinman, BA, MA, is the Executive Director of the Canadian Association of Wound Care.

The Yukon Quest:
An Adventure in Wound-care De

BY Judy Dabbs, Heather Orsted AND Shannon McGrath

While professional development in wound care is a challenge faced by every region of the country, practitioners in the North have greater obstacles to overcome. Distance, low population density and a paucity of specialized services and resources are constant barriers in the quest for improving wound-care practice. In February 2004, a first important step was made in narrowing the gap to access to educational opportunities in one area of the North.

Judy's Story

Our dream in the Yukon Territories has been to develop an evidence-based, interdisciplinary, territory-wide wound-care guideline. How to get there is the question. Our geography itself creates challenges.

There are 483,450 square kilometres in the Yukon, with a total population of almost 30,000. Whitehorse, the capital city, is home to 22,131, with the remaining people living in and around 16 smaller communities spread throughout the territories.

The Yukon Wound-care Planning Team

There has been keen interest in improving our wound-care practice, but we will have to do it differently from the "outside." We do not have local access to resources such as wound-care specialists/clinics, vascular testing/vascular specialists, foot-care specialists, etc. For these services, we have to fly south to Vancouver, Edmonton or Calgary.

We knew a wound-care course in Whitehorse would expose more health-care professionals to the scope of this field and that having a common background and current information would move us closer to developing our guidelines.

Heather's Story

Judy Dabbs, a University of Toronto (International Interdisciplinary Wound Care Course) graduate had wanted the CAWC Seminar Series to come to Whitehorse, but to bring the program there for a potential 50 registrants was a bit challenging. So Judy and I planned for a local program tailored to their needs. A detailed conversation occurred between Judy and me to determine what the needs of her group were so that the two-day workshop would ultimately improve patient-care outcomes. Since group members were from various disciplines, we added a skilled wound-care occupational therapist as part of the faculty. Two interactive, educational days were planned that had parallels to the Seminar Series, with the addition of an ostomy-management session.

The flight north from Vancouver didn't take as long as we expected, and we soon were flying over the river valley of Whitehorse in the Yukon Territories. When we arrived, Whitehorse was preparing for one of the most challenging races the North (or anywhere) has to offer —the Yukon Quest. Mushers and their dogs raced 1,600 kilometres from Fairbanks, Alaska, to Whitehorse in a challenge to see who could cross the finish line first. The excitement in the city was palpable.

I felt a similar excitement when the over 100 registrants attending the two-day workshop arrived;

velopment in Canada's North

the learning, sharing and team building had begun. Wound-care leaders were identified and became involved in the sessions. Most importantly, connections were made between the different regions of the Yukon in an attempt to support an ongoing regional dialogue for best practice in wound care.

An interactive workshop

Shannon's Story

When I was contacted to be part of this exciting educational venture, I jumped at the chance. The city was buzzing with the excitement of the upcoming Yukon Quest, and I was pleased to see that this energy was transferred to the registrants at the session. Coming from a rehabilitation background, I am always interested to see the number of rehabilitation professionals interested or practising in wound care. I was certainly impressed by the Yukon group.

Being from Calgary, I, like the general public, have often heard of the restricted resources and dearth of professionals in the North. However, my participation in the workshop showed me that a multidisciplinary approach to wound care, which can help to lessen the impact of the restrictions, is alive and strong in the Yukon. The participants not only included nurses and a physician but also included rehabilitation attendants such as occupational therapists, physiotherapists and chiropodists. Their level of skill and knowledge was impressive as was their continued desire for learning to improve their practice.

The feedback from participants about the workshop revealed that one of the most valuable learning opportunities was meeting other professionals practising in wound care. Fortunately, our educational approach not only offered information but also identified other professional leaders who could be used as ongoing resources in their community.

Health-care professionals travelled from all over the territories to

Tips for Ongoing Regional Wound-care Development:

1. Involve regional wound-care leaders from all disciplines and all areas of practice.
2. Identify strengths and weaknesses of current wound-care practice.
3. Develop a strategy for wound-care practice improvements.
4. Meet with regional management/administration to set realistic goals based on available resources and funding.
5. Develop educational initiatives based on regional needs and resources, adult learning principles and best practice.
6. Involve regional wound-care leaders to encourage precepting and support at the clinical level.
7. Evaluate the impact of your plan.
8. Identify strengths and weaknesses.

Judy Dabbs, RN, is a specialist in nursing in remote areas of the North, having completed the Outpost and Community Health Nursing Diploma at Dalhousie University and spending years working in the NWT, Yukon and northern Newfoundland. She has taught in the Outpost program, completed a graduate program in psychiatric nursing, and attended the IIWCC. She has been working in home care in Whitehorse, Yukon, since 1991.

Heather Orsted, RN, BN, ET, is currently the Chair of the CAWC Education Committee. She is a co-director of the University of Toronto's International Interdisciplinary Wound Care Course and has made major contributions to wound-care education nationally and internationally.

Shannon McGrath, OT, is currently practising in Ottawa, Ontario, in private practice. She has been a facilitator for the CAWC Skills Labs in Vancouver, British Columbia, and an expert panelist for the CAWC conference in Toronto, Ontario.

attend this two-day course, and they left with not only a wealth of information but also, more importantly, a wealth of peer support in advancing practice in wound care.

Impact of the Workshop on Practice, from Judy

The workshop surpassed the participant's expectations. It was both entertaining and informative at the same time. People still talk in glowing terms about the presentations.

As a result of the success of our first major educational endeavour, we decided to hold our first-ever Wound Care Conference in Whitehorse, September 9–11, 2004, bringing even more experts to the North.

From these beginnings, we can now move on to our goal of providing consistent wound care across the Yukon.

Epilogue, from Heather

The morning after the hands-on workshop, I woke early at 6:00 a.m. with anticipation. I was hoping I had not missed the first team to cross the finish line in the Yukon Quest. I turned on the TV to the station that ran the news and that provided a camera link to downtown. I heard they were waiting for the glow of the musher's head torch to break through the night.

Weary but triumphant, the first team across the finish line of the Yukon Quest rests after the race.

So, with me in my city clothes (looking terribly underdressed) and Shannon in her parka, toque and boots (looking like a northern explorer), we were off!

To see what the winning dogs looked like after their ordeal made us weep; they had weathered 1,600 kilometers of both the American and Canadian North, but they had done it "as a team" and they had won the Yukon Quest.

The parallels seem so strong: a northern team with a passion and a quest, working toward a common goal. Yet, it seems nothing worth obtaining is gained easily. But with determination and perseverance, wound care in the Yukon will be best practice.

Articles of Interest
Literature Review

Causes, Investigation and Treatment of Leg Ulceration

Authors: Mekkes J, Loots M, Van Der Wal A, Bos J
Publication: *British Journal of Dermatology.* 2003;148:388-401.
Reviewer: Dr. Rob Miller

This is an excellent article that reviews and highlights the common causes of leg ulceration—namely, venous insufficiency, arterial disease and diabetes. It discusses these entities with brief descriptions of their pathogenesis, prevalence, analysis and treatments.

This article also provides an inclusive list of all the causes of leg ulceration, classifying them according to etiology, such as infectious, vasculitis, tumours, metabolic disorders, hematological disorders, physical, etc. It also presents brief summaries of some of the rare forms of leg ulceration related to clotting disorders, leg ulcers secondary to hydroxyurea and some of the uncommon ulcerating skin diseases such as pyoderma gangrenosum. There are several excellent colour photographs of some of these rarer entities, which may help us, as wound-care specialists, in the clinical recognition of some of these uncommon conditions.

The review also presents tables for laboratory screening tests for vasculitis as well as the tests that should be ordered if one suspects a clotting disorder. As an example, repeated thrombophlebitis or unexplained thrombosis at a young age is an indication for screening for clotting disorders. Recognition of such possibilities should be high on our suspicion list when a patient presents with an ulcer, either in an unusual location, at a young age, or where other causes of leg ulcers such as stasis, diabetes or arterial disease are absent or have been excluded. The article is well researched with 104 references listed for anyone who wants a more detailed study of particular interest.

Nutritional Supplementation for Diabetic Foot Ulcers: The First RCT

Authors: Eneroth M, Larsson J, Oscarsson C, Apelqvist J
Publication: *Journal of Wound Care.* 2004;13(6):230-234.
Reviewers: Kimberly LeBlanc, BScN, RN, ET, MN(c); Dawn Christensen, BScN, RN, ET, MScN

Eneroth et al. conducted a randomized controlled trial exploring the effect of nutritional supplementation on diabetic foot ulcers. Their overall objective was to determine if oral nutritional supplementation improved wound healing in malnourished patients with diabetic foot ulcers when compared with a placebo. The researchers believed this concept warranted investigation because it is known that malnutrition negatively impacts wound healing in other chronic wounds, whereas the true prevalence of protein-energy malnutrition in patients with diabetic foot ulcers is unknown.

A double-blind, prospective, randomized, controlled trial was conducted. The subjects included patients over the age of 60 who were diagnosed with diabetes mellitus and presenting with foot ulcers classified with Wagner grade I or II of at least four weeks duration. Subjects were required to have agreed to participate in the study, and their distal blood pressure had to have been measured at least once in the previous three months. The patients were given either 400 ml oral nutritional supplements (n=26) or 400 ml placebo (n=27) daily for six months. They were followed monthly for six months and yearly for two years.

A third of the patients were classified as having protein-energy malnutrition at the start of the study with no significant difference between the groups. Critical leg ischemia was more common in the intervention group than the placebo group (p=0.0008). Twenty-four per cent of the patients with protein-energy malnutrition at inclusion healed at six months compared with 50 per cent of those without it (not significant).

The researchers reported three methodological problems: no generally accepted definition of protein-energy malnutrition exists; a wide range of outcome variables were found; and patients' concordance with supplementation was uncertain.

The study failed to show that oral nutritional supplementation has a significant effect on healing of diabetic foot ulcers. Nutrition is known to affect wound healing; therefore, the researchers concluded that further study is warranted. Future studies must take into account the methodological problems encountered by Eneroth et al. when researching the effects of supplementation on the healing rates of diabetic foot ulcers.

Editor's note: Reviewing an article and deciding it has negative findings is a very important activity from which clinicians can benefit. There is a significant bias that an article that shows no difference is not meaningful. In fact, if the study and subsequent article are well done, the results can be very informative. While the article reviewed in this instance does not have immediate clinical application, it does offer suggestions to other researchers who might plan to do research in this area.

Canadian Association of Wound Care News

Education

CAWC S1, S2 Seminar Series a National Success in Both English and French

The spring 2004 S-series tour was the CAWC's largest seminar program to date. It was successfully implemented in Winnipeg, Toronto, Halifax and Montreal to over 700 people from across Canada. This year, the seminar series was translated into French and delivered by Quebec-based wound-care leaders.

The CAWC Education Committee is hard at work updating the S1 and S2, and there will be three S-series programs available in spring 2005, in Calgary, Ottawa and Quebec City (French language). Visit the CAWC Web site for updated information in the new year.

Le comité Éducation de l'ACSP travaille présentement à la révision des séminaires S1 et S2. Trois séminaires S1-S2 seront offerts au printemps 2005, soit à Calgary, Ottawa et dans la ville de Québec (en français). Consulter le site Internet CAWC ou ACSP pour plus d'information.

The CAWC S3 is Now Available

The S3 Reflective Learning and Practice Portfolio is currently available in English and French. Order online at www.cawc.net

Le S3 est maintenant disponible

Le S3 Portrait de l'apprentissage et portfolio de pratique professionnelle est maintenant disponible en anglais et en français. Vous pouvez le commander en ligne au : www.cawc.net ou www.acsp.ca

Do you know someone who would like to receive *Wound Care Canada*? Please e-mail us with their name and address at cawc@sympatico.ca and we'll put them on our mailing list.

Public Policy

CAWC Board Retreat—August 2004

Because of an increased amount of board activity, the CAWC Board of Directors has determined it is necessary to schedule a second working meeting each year. In past years, the Board has only had the chance to meet face-to-face in a business setting at the January board retreat. The second retreat for 2004 was held August 27—29 at the Old Mill in Toronto. The group worked on strategic planning and initiatives for 2005 in order to continue to deliver innovative programs to the CAWC membership.

International Partnerships

The CAWC Hosts the First North American Wound Care Council Meeting

The CAWC will be hosting, as part of its 10th anniversary conference, the first planning meeting of the North American Wound Care Council. This meeting will take place November 10, 2004, and will involve the presidents and executive directors of key wound-care-affiliated associations.

For more information on this exciting new idea, please see the article on page 43.

The 10th Annual Conference of the Canadian Association of Wound Care (CAWC):

An Event Not to Be Missed!

You've heard about it. You've read about it. Don't miss out on it! This year marks the 10th Anniversary of the CAWC, and the 10th Annual CAWC Conference promises to be the decade's most significant wound-care event in Canada.

Here are the top 10 reasons you should attend.

10. Richard Heinzl, MD, and founder of Doctors Without Borders, Canada, will be the keynote speaker. He's written the book on meeting the challenges of a borderless world and making a difference in people's lives. His experiences will move and inspire you.

9. The CAWC forums will give you opportunities to voice your views on issues that are important to you. Attend the forums and make a difference!

8. This year will see the return of post-conference workshops on the three most-requested topics: Dressings, Rehab Modalities and Pressure Management.

7. The highest-ever number of abstracts were submitted to the review panels, ensuring a large number of presentations on topics of interest to wound-care professionals.

6. The number of satellite symposia has increased from two to four, guaranteeing more topics, more speakers and more opportunities for learning than ever before.

5. A new stream—advances in Wound Care—has been added.

4. The Exhibit Hall will be open earlier and longer than ever before—due to requests from participants—to showcase the latest advances in products and services.

3. The opportunity to network with colleagues will be unsurpassed!

2. Two fabulous events you can't miss: the Fun Run/Walk, which will energize the participants (well, those who manage to get up early and brave the November weather) and the President's Banquet, a gala evening of tasty food, dancing to a great band and socializing with old and new friends.

And the number one reason to attend the conference …

1. This will be the biggest wound-care celebration Canada has ever seen!

The Details

When and Where
November 11—14, 2004, Telus Convention Centre, Calgary

President's Banquet

The evening will kick off with a cocktail reception followed by the largest Canadian wound-care celebration ever, in true Calgary style! Tickets are $40 per person. Seating is limited, so please register soon.

Fun Run/Walk

A great new feature of the conference is the November 13 Fun Run/Walk! It begins at 7:00 a.m. and is a great way to start your day! Bring your exercise gear and get energized with fellow delegates. Register at the conference.

Target Audiences

The conference program will meet the educational needs of the following health-care professionals:

- Nurses
- General Practitioners
- Enterostomal Therapists
- Surgical Specialists
- Chiropodists
- Connective Tissue Researchers
- Dermatologists
- Dietitians
- Internal Medicine Specialists
- Occupational Therapists
- Orthotists
- Pharmacists
- Physiatrists
- Physical Therapists
- Podiatrists

Program Objectives

At the end of this conference, the participant will

- be aware that learning is life-long and only begins with a questioning mind
- have developed a strategy to critically appraise wound-care information and determine its applicability to your clinical-practice setting
- have stretched boundaries to incorporate new wound-care knowledge and treatments for improved patient outcomes into your clinical-practice setting
- have networked and increased collaboration with other members of the wound-care community to recognize the value of teamwork
- have had the opportunity to address the ongoing development of key career skills.

For Non-members

If you are not a member of the CAWC but are thinking of joining, now is the time. You will immediately become eligible for a **15 per cent discount** on the conference registration fee.

How to Register

For more information on the conference or to register online, visit the CAWC Web site at www.cawc.net or call 1-877-288-7018.

The Benefits of Receiving a CAWC Scholarship

BY Karen Bruton

For the first time, in 2002, the Canadian Association of Wound Care (CAWC) offered six scholarships for health-care professionals to pursue studies or research in wound care. CAWC and four of its corporate partners funded the six scholarships, worth $2,500 each. The grants may be used by CAWC members to finance research projects in the field of wound care or to finance study in approved courses on wound care and related fields, or in some cases to attend conferences and/or educational programs that would serve to educate, inform and promote best practice within the wound-care community and improve patient care. Below, Karen Bruton shares her personal experience on how one of those scholarships influenced the course of her career.

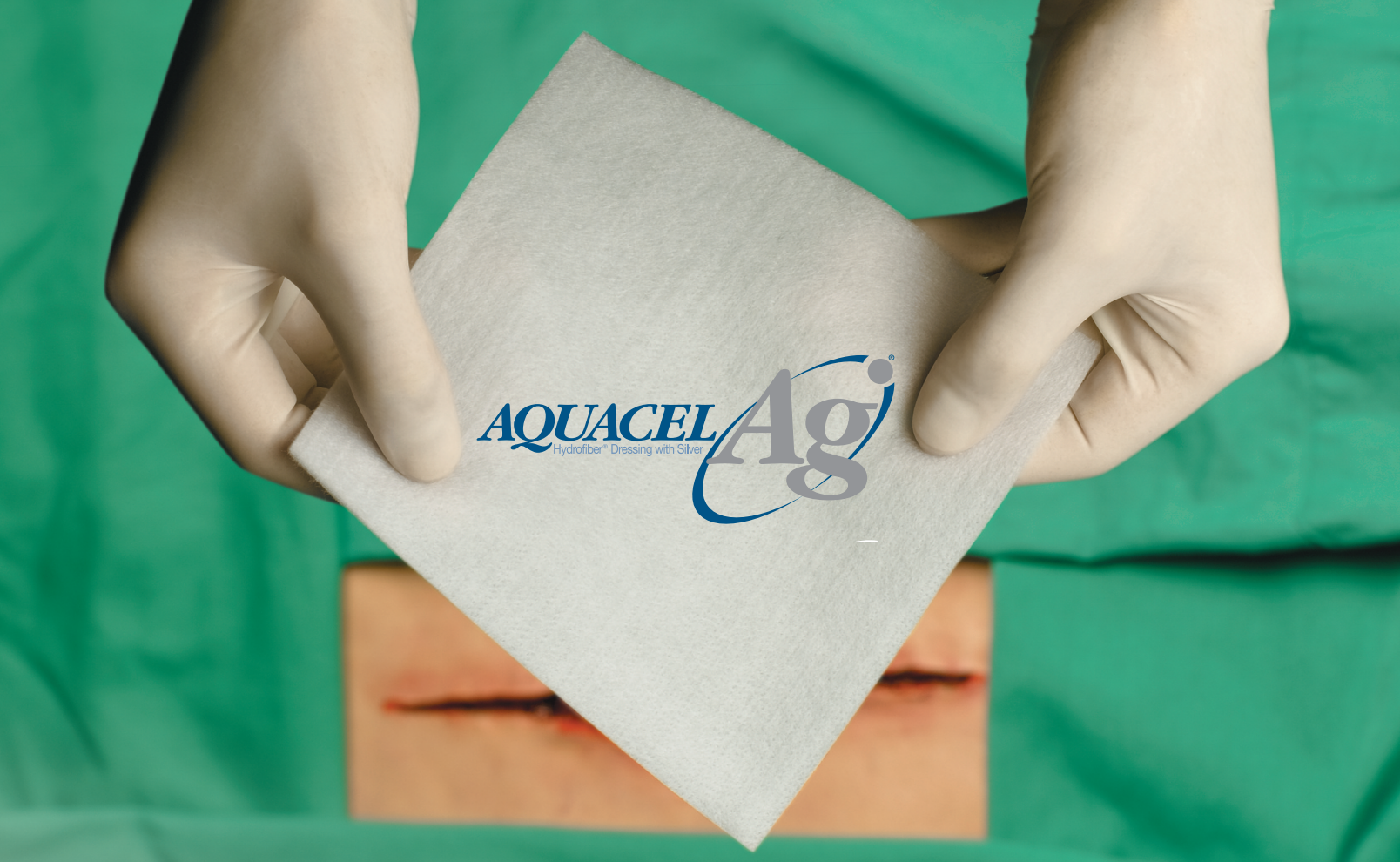
It was a great honour to receive CAWC's first-ever scholarship, called the *Cathy Harley Educational Grant in Memory of Aldora Harder and Cathy Foster*. The scholarship allowed me to pursue my strong interest in wound care by allowing me to take the International Interdisciplinary Wound Care Course (IIWCC) through the University of Toronto. The learning experiences, coupled with meeting health professionals with the same interests from around the world, have had a profound influence on me. There will always be special memories of the time spent with new-found friends, colleagues and mentors during the two four-day residential weekends (pre- and post-course) together in Toronto. I spent many long nights studying and answering questions, and this course has made me re-examine my professional goals and interests and has opened doors I never thought would be opened.

Through the course, I developed several self-learning tools for Compression Therapy and the Braden Scale. I have written wound-care policies and guidelines (based on best practices and evidence-based articles) and have had them pass through various committees in our facility. I am now able to offer educational sessions, am the wound-care consultant at Northumberland Hills Hospital and teach physicians on an ongoing basis. I now have a great interest to explore methods of program planning/implementation of an out-patient clinic and have been asked to sit on a planning committee this fall to develop an out-patient high-risk foot clinic with the VON. I believe that my participation in the IIWCC led me to be able to sit on the RNAO's Best Practice Guideline Committee for The Assessment and Management of Neuropathic Foot Ulcers for People with Diabetes. The course also helped me prepare for the Canadian Association of Enterostomal Therapy's ET program.

Several months ago, I was asked to speak to and answer questions from a group of experienced nurses. For an hour, they were all attentively listening to what I had to say. At the end of my presentation, the nurses commented on how interesting and informative it was. I felt a great sense of pride in being able to present knowledge that I have acquired over time and to present it confidently. Having taken the IIWCC, I was confident in my background knowledge of statistical findings and rationales for best evidence and best-practice guidelines.

Through attending the course, which was enabled by the CAWC scholarship, I have increased my understanding of wound-care principles, feel confident in that understanding and can now share my knowledge with others. This will ultimately lead to increased knowledge for patients, which leads to increased adherence, which encourages healthier outcomes. I take great pride in knowing that by improving my practice and the practice of others, patients will be the ones who will benefit the most.

Karen Bruton, RN, IIWCC, is a full-time staff nurse at Northumberland Hills Hospital, Cobourg, Ontario, where she works in hemodialysis and as a wound-care consultant. She is the VON Wound Consultant for the community in Eastern Ontario, has a small private practice and works casually at St. Michael's Hospital in Toronto. She is on the Four County Wound Care Committee, Peterborough; Northumberland Hills Hospital Skin Ulcer Prevention and Wound Healing Committee (Co-Chair); RNAO's BPG Panel and the VON High Risk Foot Committee.



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[†] *In vitro* testing, using simulated wound fluid model.

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