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# WoundCare



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**Telehealth and  
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The Remote  
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References: 1. Dykes P. The Effect of Adhesive Dressings on the Stratum Corneum of Normal Skin. (Data on file)

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# Mastering Technology as a Tool



Sue Rosenthal

Like many people I struggle with the use of advanced technology in my work. Do I need the latest and fastest? Do I have to learn about the newest technology the moment it comes out? How long can I ignore something new before I'm completely left behind?

What has worked for me is to adopt the technology that will serve me well, and forget the rest. I can't afford to become a slave to something that is not going to pay off in saved time and better outcomes. From speaking to many of you, I know you face the same dilemma.

To address your concerns, in this issue of *Wound Care Canada* we present several articles that demonstrate how the right use of

*"The right use of technology, in the right circumstances, can lead to excellent patient outcomes and cost savings."*

technology, in the right circumstances, can lead to excellent patient outcomes, cost savings, and patient and care-provider satisfaction. The topics range from long-distance videoconferencing for patients who cannot travel to more commonly used techniques that are initially expensive but ultimately cost-effective. We even have a primer for using the Internet effectively to enhance your practice. We encourage you to read the articles and determine if they have

application in your care setting.

But in any health-care situation, technology will not be the final answer. As wound-care professionals you constantly face the challenge of combining the science with the art of healing, which no technology can ever replace. The articles in this issue demonstrate that, despite the successful use of technology, the art of healing is irreplaceable. ☺

Sue Rosenthal, Editor

## La maîtrise de la technologie : un outil

Comme bien d'autres, j'ai des réticences à utiliser la technologie de pointe dans mon travail. Ai-je vraiment besoin de l'ordinateur le plus puissant et le plus rapide? Est-il vraiment nécessaire que j'apprenne la toute dernière technologie dès sa sortie? Pendant combien de temps puis-je résister aux nouveautés avant d'être complètement dépassée?

Pour ma part, j'ai décidé d'adopter la technologie qui me sera utile et d'oublier le reste. Je ne peux me permettre de devenir esclave d'un outil qui ne me fera pas gagner de temps et ne me procurera pas de meilleurs résultats. Par mes échanges avec bon nombre d'entre vous, je sais que je ne suis pas la seule à me trouver prise dans ce genre de dilemme.

En ce qui vous concerne, le présent numéro de *Wound Care*

*« En utilisant la technologie judicieusement et dans le bon contexte, il est possible d'obtenir d'excellents résultats pour les patients en plus de réduire les coûts. »*

*Canada* contient plusieurs articles qui démontrent comment le bon usage de la technologie, dans les bonnes circonstances, peut donner d'excellents résultats en plus d'être économique et de satisfaire autant les patients que ceux qui les soignent. On y parle de vidéoconférences à distance pour les patients qui ne peuvent se déplacer et de techniques plus largement utilisées qui sont coûteuses au départ, mais qui s'avèrent économiques avec le temps. Nous vous proposons aussi des notions élémentaires pour améliorer votre pratique par

l'utilisation d'Internet. À la lecture, vous pourrez déterminer dans quelle mesure ces articles s'appliquent à votre contexte.

Mais il demeure que la technologie n'aura jamais réponse à tout. Comme professionnels du soin des plaies, vous devez toujours combiner la science à l'art de soigner, ce qu'aucune technologie ne pourra jamais faire. Les articles de ce numéro montrent que, malgré le succès indéniable de la technologie, l'art de soigner reste irremplaçable. ☺

Sue Rosenthal, Rédactrice

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specializes in health  
and wellness  
communications and  
has been associated  
with the CAWC  
since 2000.





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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.

**CLINICAL PRACTICE**



**Telehealth and  
Interdisciplinary Wound Care**

Expertise of the  
Enterostomal Nurse  
in a Health-care Team:  
The Remote Fitting  
of a Fistula ..... 10

**Using Technology to Improve Your Wound-care Practice:**

Part I: The Internet ..... 12

**CAWC Survey:**

Clinical Practice Issues ..... 16

**Wound Care:**

Wound Care in Neonatology ..... 18



**Surgical  
Advances  
in Wound Care:**

A Canadian  
Perspective ..... 22

**PUBLIC POLICY**

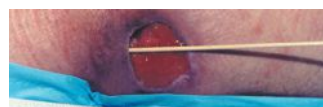
**Projet de loi n° 90** ..... 30

**Cost-effective  
Wound Care:**

How the Advanced Practice  
Nursing Role Can Positively  
Affect Outcomes in an  
Acute-care Setting ..... 32



**RESEARCH**



**Electrical Stimulation:**

A Case Study for a  
Stage III Pressure Ulcer ..... 34

**More features ...**

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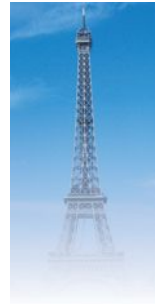
### Lifelong Learning:

A Pathway to Expert Practice ..... 38

### S3:

Reflective Learning and Practice Portfolio ..... 41

## INTERNATIONAL PARTNERSHIPS



### The World Union of Wound Healing Societies (WUWHS):

Meeting in Paris ..... 42

## Departments

### Editor's Message

Mastering Technology as a Tool  
La maîtrise de la technologie : un outil ..... 3

### News in Wound Care

Upcoming Events ..... 8



### Interview

Dr. Diane Krasner:

A Key Contributor to Wound Care ..... 27

### Ask the Expert

Dr. Gary Sibbald Answers

a Question on Creams and Ointments ..... 37

### Regional Initiatives

Negative Pressure Therapy  
in the Community:

Analysis of Outcomes ..... 43



### Literature Review

Articles of Interest to Wound-care Professionals ..... 46

### CAWC News

The Latest Association News ..... 48

### Last Word in the First Person

A Broader Scope:

One Patient's Experience ..... 50



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### Tenth Annual Conference

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[www.cawc.net/open/conference/conferences.html](http://www.cawc.net/open/conference/conferences.html)

## OTHER EVENTS

### Canadian Paediatric Society Annual Conference

June 16–20, 2004  
Montreal, QC  
[www.cps.ca](http://www.cps.ca)

### Second World Union of Wound Healing Societies' Meeting

July 8–13, 2004  
Paris, France  
[www.wuwhs.org](http://www.wuwhs.org)

### Canadian Association of Enterostomal Therapy 23rd Annual Conference

October 13–17, 2004  
Okanagan Vintage –  
A Taste of Success  
The Grand Okanagan,  
Kelowna, BC  
[www.caet.ca/conference.html](http://www.caet.ca/conference.html)

## News from the Corporate World of Wound Care

### 3M WoundCoach

3M WoundCoach is a resource developed and delivered by the wound-care professionals at 3M Canada. 3M has worked closely with health-care leaders in developing this tool and is the first company to incorporate this approach in advanced wound care. 3M WoundCoach will enable hospitals and other health-care facilities to develop a seamless, interdisciplinary, team-oriented, best evidence/best practice guideline approach to chronic skin- and wound-care management. 3M WoundCoach is a revolutionary concept that will not only facilitate best practice guideline integration for improved patient outcomes, but will also provide continuing professional development

for clinicians to sustain those practice changes.

### Smith & Nephew Announces VERSAJET

Smith & Nephew exists to help people regain their lives. As examples of the corporate values of performance, innovation and trust, Smith & Nephew has acquired the VERSAJET fluid jet surgical debridement product, further strengthening the company's portfolio in advanced wound-bed preparation products.

"VERSAJET is an outstanding new technology that enables the clinician to easily remove contaminated and non-viable tissue when preparing acute or chronic wounds for closure or healing in a precise and safe manner," said Teresa Mattarelli, General Manager, Smith & Nephew.



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](mailto:cawc@sympatico.ca) and we'll put them on our mailing list.

## NEW RESOURCE

*Fundamentals of Nursing: The Nature of Nursing Practice in Canada*, First Canadian Edition (Kozier, Erb, Berman, Burke, Bouchal, Hirst) has now been published. Chapter 37 (Wyrstok/Orsted) is dedicated to Skin Integrity and Wound Care. It has a research note that sends nursing students to the CAWC Web site and includes IIWCC as a Web link.

## Call for Abstracts

The 10th Annual Conference of the CAWC is the ideal place for wound-care professionals from all disciplines to share their research findings, ideas and solutions. Past CAWC conferences have given presenters an excellent opportunity to link with colleagues from across Canada who have common issues or interests. Conference organizers have issued a call for abstracts on research for the 2004 CAWC meeting. Visit the CAWC Web site at [www.cawc.net](http://www.cawc.net) for details.

Visit the CAWC Web site at [www.cawc.net](http://www.cawc.net) for the latest wound-care news and information. **For our francophone readers:** The French side of the Web site is expanding, with added articles, news and information. The CAWC best practice articles have been translated. Other articles will appear on the Web site as they become available.



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





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# Telehealth and Interdisciplinary Expertise of the Enterostomal Nurse

## The Remote Fitting of a Fistula



BY Manon Paquin

**T**he number of health professionals with an interest in wound care is constantly increasing. This group of health-care professionals includes enterostomal therapy nurses, general practitioners, dermatologists, plastic surgeons, vascular surgeons, pharmacists, dietitians, physical therapists and occupational therapists. Each professional, depending on their field of expertise, has a vision, a role and responsibilities — but also limitations.

Therefore, the interdisciplinary approach becomes necessary for an overall and effective management of the patient. The recognition of each stakeholder's skills is essential to the communication process.

Last July, as an enterostomal nurse, I had a very rewarding experience, both professionally and personally. Using videoconferencing technology, I supervised from Montreal the fitting of an enterocutaneous fistula in a patient living in Sept-Îles, a Northern Quebec town almost 1,000 km away. This procedure made it possible for the health professionals caring for this patient to benefit from a telementoring and teletraining activity for a two-hour period. As part of the activities of the

Centre Hospitalier de l'Université de Montréal (CHUM), this was a first in nursing care.

The patient, a 49-year-old man, had been suffering from bulbar ulcer and reflux esophagitis since 1999. Following a Nissen fundoplication and numerous complications leading to a diagnosis of adenocarcinoma of the stomach, he underwent a partial radical gastrectomy with chemotherapy in August 2001.

In February 2003, a relapse of the cancer with metastases of the abdominal wall was diagnosed. A last surgical procedure was done, consisting of the resection of the parietal metastatic regions, repair of the small intestine laceration and reconstruction of the wall with a polypropylene wick.

During the postoperative period, there was a deterioration of the abdominal wound. The diameter of the wound increased, and the brownish-coloured discharge became more abundant and very foul-smelling.

In May 2003, the patient was admitted to home-care service under the care of Dr. Yveline Romain, due to the deterioration of his general health and for the management of his wound. From May to July 2003, Dr. Romain

### Télésanté et interdisciplinarité

Expertise de l'infirmière stomothérapeute dans une équipe de soins : appareillage d'une fistule à distance

#### Résumé

Au mois de juillet dernier, à titre d'infirmière stomothérapeute, j'ai vécu une expérience fort enrichissante à la fois au plan professionnel et humain. Utilisant la technologie de la visioconférence, de Montréal, j'ai dirigé l'appareillage d'une fistule entéro-cutanée chez un patient localisé à Sept-Îles, ville située à 950 km dans le

nord du Québec. Cette façon de procéder a permis aux professionnels de la santé impliqués auprès de ce patient, de bénéficier d'une activité de télé-tutorat et de téléenseignement durant une période de deux heures. Dans le cadre des activités du CHUM (Centre Hospitalier de l'Université de Montréal), il s'agissait d'une première en soins infirmiers. ☺



L'article intégral en français est disponible sur le site Internet de l'ACSP à [www.cawc.net](http://www.cawc.net).





# Primary Wound Care in a Health-care Team:

did her utmost to treat the wound, but unfortunately to no avail. The quantity of the discharge required a daily dressing change, despite the use of very absorbent dressings (hydrofibres, foams and others). As for the smell, despite medications such as metronidazole per os and ciprofloxacin (Cipro) – prescribed for an infection secondary to *Klebsiella pneumoniae* – it did not improve. A topical treatment with metronidazole in a hydrogel was also initiated, but without success.

On July 14, 2003, Dr. Romain contacted me. She wanted to discuss her patient's condition and obtain my opinion and recommendations. "The patient is terminally ill, he is 49 years old and the father of two daughters aged nine and 11," she told me. "He is very courageous, but the status of his wound depresses him and makes him irritable, which adversely affects his relationship with his daughters and his spouse. Therefore, I need your experience to find a humane solution to help this patient at the end of his life."

After the examination of digital photos showing the patient in various positions, I finally concluded that it was a low-output enterocutaneous fistula. No local or systemic procedure could help in the treatment of the wound. Palliative care focused on patient comfort was the ultimate solution.

We had to consider the fitting of the fistula. The presence of several folds around it was making the technique more complex. Also, no health professional in the area had experience in the fitting of a wound or a fistula, and needless to say they didn't have the required equipment for this type of procedure.

We thought of several alternatives. The complexity of

the wound required more than telephone or electronic advice, and all scenarios considered called for costly and tiring travel for the patient. After discussions with Dr. Romain, I chose to get involved via a telehealth system. Once the appropriate action to acquire the necessary equipment was completed, we set the date and time of the procedure.

On July 25, at 1:30 p.m., I was able to see Mr. L, with his wife, Dr. Romain and two nurses. He was in front of me on a wide screen, lying down on a stretcher. I could

communicate with them in real time. At my command, the wound was accessible by a simple camera move. This way, it was easy for me to observe the details of the wound: hypergranulation, groove, colouration, etc.

Step by step, I guided virtually all of the nurses' moves as well as Dr. Romain's. All participated, technically and psychologically, to the fitting installation. The team showed quick learning and great dexterity, despite the fact that they had never done this type of procedure before. The patient was very co-operative and even displayed a sense of humour. His comments at the end of the procedure were positive, saying notably that he "felt light." To my great surprise, I felt that a privileged relationship developed with Mr. L., despite the technology separating us.

The appropriate treatment for this type of wound depended on the expertise of the enterostomal nurse. Her knowledge in wound care and in the types of fitting and products related to stoma care, fistulas, tubes and drains helped make the difference.

This telehealth interdisciplinary and interregional activity

*Continued on page 47*



**Manon Paquin, RN, BSc, ET**, has worked as an ET nurse since 1989 at the Centre Hospitalier de l'université de Montréal (CHUM), Hôpital St-Luc and as a nurse since 1979. CHUM is a regional centre.

# Using Technology to Improve Your Wound-care Practice

## Part I: The Internet

*This is the first in a series of articles on how the use of technology can enhance your wound-care practice.*



BY Douglas Queen

**C**ommunication technologies, from the printing press, to the telephone, to computers and the Internet, have been changing our lives for some considerable time. Even though we recognize that such technological tools can dramatically improve our lives, we need to be aware of the need to anticipate and manage their consequences. This is particularly true in health-care areas, where technology and medical knowledge are both advancing so rapidly that we can often be left behind.

Computers have been around for many years now, but they have only truly impacted our home and work lives for the past 20 years, with the most significant effect only in the last five years or so. This has resulted mainly from the advent of the Internet. While it has been around for most of the 1980s, mostly as a global academic network, the Internet has only recently become a public commodity.

Initially, the Internet was mostly used for electronic mail. This essentially allowed users to exchange text messages across the globe, usually in a matter of minutes, or, with today's broadband, seconds! However, it was probably the advent of the World Wide Web that

triggered the recent growth of the Internet. Here users can access a variety of information — from the bizarre and inaccurate, to the most up-to-date information available from scientific bodies and academic journals. These users include patients and their families.

### Health Information on the Internet

A recent report<sup>1</sup> has indicated that a large percentage of people of all ages are turning to the Internet to look for health information for themselves and their families (see Table 1).

The research company surveyed over 4,500 adults in France, Germany, Italy, Spain, the U.K. and the U.S., and found that 57 per cent of the respondents over the age of 55 had consulted Internet sources when looking for health information, as had around 50 per cent of the 35-54 age group. This is a significant group, which can be tapped for research and are seeking educational help.

A further study by Harris Interactive and the Harris Poll<sup>2</sup> demonstrated some differences geographically but also confirmed a significant audience for health-related materials (Table 2).

### Glossary

**Internet:** The Internet is an international network of computers. The services most commonly accessed on the Internet are e-mail, the Web, newsgroups, mailing lists (listservs), chat rooms, Telnet and FTP functions.

**World Wide Web:** The World Wide Web, or more commonly, the Web, is one component of the Internet. It uses protocols and formats that are compatible with the majority of the world's computers.

**Douglas Queen,  
BSc, PhD, MBA,**

is the CEO and President  
of Medicalhelpline.com  
Inc, Toronto, ON

## The Internet as a Resource

The Internet is an immense, rapidly accessible educational research resource. It can dramatically enhance an individual's ability to self-educate and is becoming paramount in the area of continuing medical education.

The Internet is a valuable source of information, but due to the volume of information available one has to be strategic in its use to obtain the appropriate information in the most efficient manner. This article presents background information on how to look and where to look for wound-care-specific information. The goal for a busy health-care practitioner: minimizing surfing time but maximizing the information return.

Several new Web sites have been designed with the wound-care provider in mind. They have a specific niche focus on wound care and bring the user to gateways that allow both educational and product information to be accessed with minimal surfing with a high level of interactivity. Specific chat sites and bulletin boards (discussion forums) are also available, bringing further interactivity to its users.

Through these new wound-care-focused Web sites, one can participate in both education and wound-care-specific research studies, where users can be asked, via e-mail, to complete Internet-based surveys related to wound care. In addition they can provide a number of educational resources and, in essence, take the effort out of surfing.

## The Future of the Internet in Health Care

The Internet will be the next major paradigm change in the delivery of both health-care and health-related information. Telemedicine and electronic health records are to become a reality and in some instances have already become so. Specialized resources related to wound-care education are becoming readily available and, indeed, some continuing medical education sites exist today. Future offerings will provide formal online education resources.

## The ABCs of the Internet

As wound-care professionals you know it is important to be up-to-date on the information available to enhance your practice. This is necessary not only to stay abreast of recent developments or to further your own educational

needs, but also to be aware of the information readily available to, and routinely accessed by, your patients.

Although we may feel that such resources are for another generation, namely our children, the reality is that as we become elderly and experience the physiological consequences of age, we require an understanding of what's going wrong. Recent studies have confirmed that the largest population of individuals seeking health-care related information on the Internet is the elderly.

**Ask** – The better search engines can help but often require significant surfing to find what you want.

**Believe** – Specialized wound-care Web sites or wound-care associations can be better starting points. The newer sites bring enhanced Internet use and provide ready access to relevant information for wound-care users. The CAWC Web site is a case in point.

**Chat** sites and bulletin boards can also be good interactive resources to communicate with others facing the same issues on a daily basis.

And don't forget the companies serving the wound-care arena; many have educationally focused Web sites with impartial information.

## Surfing Recommendations

To help you use the Internet effectively to improve your wound-care practice, check out the Web Resource

*Continued on page 14*

## References

1. Who is Looking for Health Information Online? A Segmentation Analysis of the Online Consumer, Datamonitor Report BFHC0470. Sept. 2002.
2. Four-nation survey shows widespread but different levels of Internet use for health purposes. *Harris Interactive Health Care News*. Volume 2, Issue 11. 2002.

TABLE 1

### Internet Habits by Age Group

| Online Activities                              | % of 18-34 years | % of 35-54 years | % of 55+ years |
|--|------------------|------------------|----------------|
| Received and sent e-mail                       | 92               | 95               | 97             |
| Used the Internet to get the daily news        | 45               | 51               | 55             |
| Visited Web sites/online channels about health | 39               | 49               | 57             |
| Read through or posted on Message Boards       | 24               | 22               | 25             |

Source: Datamonitor Report<sup>1</sup>



Guide below. Many more resources exist, but those listed are good places to start. Also you may find the following tips good to remember when you're looking for wound-care-related information:

1. Start with a specialized wound-care site (e.g., [www.woundcarehelpline.com](http://www.woundcarehelpline.com)).
2. Ensure that you check out the links section for other resources.
3. Follow this up with a wound-care association (often in the links area).
4. Next check out a manufacturer to see if they have an educational area.
5. Interact with others through a chat site (e.g., [www.woundchat.com](http://www.woundchat.com)).
6. If you still haven't found what you want, use a search engine.

Don't be frightened of the Internet; enjoy it and benefit from the wealth of information freely available. Allow it to help you help your patients — remember, they do! ☺

TABLE 2

## Health Information Seekers by Geography

**Incidence of Health Seekers in the Big Four Pharmaceutical Markets: January 2002**

|   | U.S. | France | Germany | Japan |
|---|------|--------|---------|-------|
| Online population (% of all adults)   | 66%  | 35%    | 44%     | 42%   |
| % of all those online who ever looked for health-care information on the Internet | 80%  | 69%    | 86%     | 90%   |
| % of all adults who ever looked for health-care information on the Internet       | 53%  | 24%    | 38%     | 38%   |
| Number of adults who ever looked for health-care information on the Internet      | 110M | 14M    | 31M     | 48M   |

Source: Global Cyberchondriacs Study, Harris Interactive, January 2002, and the Harris Poll, March 2002

## Web Resource Guide

### Search Engines

**Yahoo** [www.yahoo.ca](http://www.yahoo.ca)  
**Google** [www.google.ca](http://www.google.ca)  
**Look.com** [www.look.com](http://www.look.com)  
**PubMed** [www.pubmed.com](http://www.pubmed.com)  
**Medline Plus** [www.medlineplus.com](http://www.medlineplus.com)  
**MedicineNet.com**  
[www.medicinenet.com](http://www.medicinenet.com)  
**Med411.com** [www.med411.com](http://www.med411.com)

### Specialized Sites

**Woundcarehelpline.com**  
[www.woundcarehelpline.com](http://www.woundcarehelpline.com)  
**World Wide Wounds**  
[www.worldwidewounds.com](http://www.worldwidewounds.com)  
**WCIN** [www.medicaledu.com](http://www.medicaledu.com)  
**Wound Tx.com** [www.woundtx.com](http://www.woundtx.com)  
**Wounds1.com** [www.wounds1.com](http://www.wounds1.com)

### Associations

**Canadian Association of Wound Care**  
[www.cawc.net](http://www.cawc.net)  
**AAWC** [www.aawc1.com](http://www.aawc1.com)  
**EWMA** [www.ewma.org](http://www.ewma.org)  
**AAWM.org** [www.aawm.org](http://www.aawm.org)  
**Wound Care Society**  
[www.woundcaresociety.org](http://www.woundcaresociety.org)  
**European Tissue Repair Society**  
[www.etrso.org](http://www.etrso.org)  
**Wound Healing Society**  
[www.woundheal.org](http://www.woundheal.org)  
**Chat Sites and Journals**  
**WoundChat.com** [www.woundchat.com](http://www.woundchat.com)  
**Wound Care Canada** [www.cawc.net](http://www.cawc.net)  
**Wound Repair and Regeneration**  
[www.blackwellpublishing.com](http://www.blackwellpublishing.com)  
**International Wound Journal**  
[www.blackwellpublishing.com](http://www.blackwellpublishing.com)  
**Wounds** [www.woundresearch.com](http://www.woundresearch.com)

### Ostomy/Wound Management

[www.o-wm.com](http://www.o-wm.com)

### Skin & Wound Care

[www.woundcarenet.com](http://www.woundcarenet.com)

### Wound Care

[www.journalofwoundcare.com](http://www.journalofwoundcare.com)

### Educational Resources and Companies with Educational Components

**TWHC** [www.twhc.ca](http://www.twhc.ca)  
**Wound Healing Research Unit**  
[www.whru.co.uk](http://www.whru.co.uk)  
**Smith + Nephew**  
[www.woundbedpreparation.com](http://www.woundbedpreparation.com)  
**Global Wound Academy**  
[www.globalwoundacademy.com](http://www.globalwoundacademy.com)  
**Hollister** [www.hollister.com](http://www.hollister.com)  
**Johnson & Johnson Gateway**  
[www.advancedwoundcare.com](http://www.advancedwoundcare.com)  
**3M** [www.mmm.com](http://www.mmm.com)  
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# CAWC Survey on Clinical Practice Issues

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Practice Committee.

**A** survey of the attendees of the CAWC Eighth Annual Conference was conducted by the Clinical Practice Committee to determine wound-care clinical practice concerns.

All November 2002 CAWC registrants (n=540) received a survey in their registration conference packages.

The survey design was completed with the assistance of an epidemiologist to facilitate methodological integrity. The survey questions were developed taking into consideration issues presented by Dillman.<sup>1</sup> The Clinical Practice Committee identified two categories of issues – structural and process – each with 10 issues. Within each category, respondents were asked first to rate each issue as either a major or minor concern. Second, respondents were asked to rank the top three wound-care concerns for their environment. The committee's decision to rate and then rank concerns was made to facilitate the

opportunity for respondents to think about the issues before identifying their relative importance.

Last, respondents were asked to identify two key strengths that they or their wound-care team provides. Three committee members reviewed the responses in order to identify common themes. Seven themes emerged, and the responses were then coded according to these seven themes. Many responses contained multiple themes, and all were coded. The qualitative research method of member checking, between the three reviewers, was used to establish a consensus in coding.<sup>2</sup>

## Results

Of the 540 conference registrants, 262 attendees responded to the survey; a percentage of registrants was either not in clinical practice or did not respond. Of the responses, eight forms were spoiled, yielding a total of 254 respondents – a response rate of 48 per cent.

## Demographic Information about Respondents

### Professional Designation

The majority of respondents were RNs as shown below.

| Professional Designation | % of respondents |
|--------------------------|------------------|
| RN                       | 86.4%            |
| MD                       | 4.3%             |
| OT                       | 1.2%             |
| PT                       | 2.8%             |
| Dietitian                | 0.8%             |
| RPN/LPN                  | 2.8%             |
| Other*                   | 3.1%             |

\* Pedorthist, Hyperbaric Technician, Certified Hand Therapist, Chiropodist, Tenant Care Co-ordinator, RRT, Pharmacy Tech, DPM

### Type of Facility

Many respondents reported working in more than one type of facility.

| Facility                    | % of respondents |
|-----------------------------|------------------|
| Acute Care Hospital         | 31.0%            |
| Community Care              | 26.6%            |
| Long Term Care/Nursing Home | 12.7%            |
| Chronic Care/Rehab Hospital | 3.2%             |
| Ambulatory Care             | 7.1%             |
| Multiple Practice Settings  | 18.8%            |
| Other**                     | 0.8%             |

\*\* One research laboratory, one unspecified.



## Summary

The survey presented at the November 2002 CAWC Conference resulted in the collection of consistent information regarding the issues facing wound-care clinicians.

The top six identified structural issues are:

- Lack of financial support for wound care
- Focus on treatment rather than prevention
- Lack of education in wound care
- Lack of evidenced-based practice and protocols
- Lack of interdisciplinary teams
- Lack of access to wound experts

The top six identified process issues are:

- Lack of co-ordinated wound care across the continuum
- Focus on cost vs. cost effectiveness
- Lack of collaboration between wound-care services in the region
- Inconsistent case management
- Lack of communication within the team
- Lack of access to supplies

The strengths identified within wound care include:

- Availability of resources
- Wound-care knowledge and skill
- Positive attitudes
- Effective communication
- Interdisciplinary teams

Where do we need to go from here?

## Structural Issues

The top concerns involve fiscal constraints, which may have an effect at the local level, but are heavily reliant upon provincial and federal policies. The CAWC's Public Policy Committee could potentially be involved with this area. The Research Committee may also generate scientific evidence to support cost effectiveness of wound care. Such evidence could then be utilized to influence governmental decision-making.

The Clinical Practice Committee believes that most of the identified issues can be incorporated into the educational endeavours of the CAWC, for example, continuing education regarding how to make structural changes within the hospital system and/or how to develop teams, team effectiveness, etc. The lack of evidenced-based practice and protocols is a major concern. This committee recommends that this be the first priority of focus. We believe that the consensus panels set for the next annual meeting would be the starting point for this work.

## Process Issues

Many of the issues in this area relate to how teams function. As mentioned above, the Clinical Practice Committee recommends that team dynamics, team development and team effectiveness be a focused stream at the next several conferences and/or designed within the S1 to S6 program.

## In Closing

This survey collected data related to clinicians' perceptions of the strengths and limitations of wound-care practices in Canada. The Clinical Practice Committee hopes that the information gathered in this survey will be of value to the CAWC membership and others involved in wound care and will assist the CAWC to foster the growth and evolution of wound care nationally. Many of the issues identified may be addressed by one of the five pillars of the CAWC: Research, Education, Clinical Practice, Public Policy and International Partnerships. ☺

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# Wound Care in Neonatology



BY  
Louise  
Forest-Lalande

**S**kin lesions observed in paediatric patients, although different from those of adults, require the consideration of various issues specific to age and actual condition. The skin physiology of premature babies, the psychological impact of a wound on a child and the risk factors for pressure ulcers are some of the aspects to consider. This article suggests some basic principles for wound care in neonatology. Major paediatric centres now treat many low-birth-weight premature neonates (500–600 grams) after 24 or 25 weeks of pregnancy. It is imperative to understand certain characteristics of their skin physiology to avoid any harm to their fragile skin, even if the scarring process is similar to that of the adults.

## Skin Physiology in the Premature Neonate

The skin of the low-birth-weight neonate is transparent, reddish and has a gelatinous appearance. The horny layer has few cell layers; moreover, the junction between the epidermis and the dermis is very fragile because of the immaturity of the anchorage structures. This lack of development of the horny layer causes a disturbance of the

skin's protective role in the premature neonate that manifests itself by high permeability,<sup>1,5</sup> more significant trans-epidermic water losses,<sup>1,5</sup> and increased sensitivity to infections.<sup>1,5,9</sup> With respect to permeability, Harpin and Rutter's research has shown that in the premature neonate, topical products are absorbed, thus generating a risk of systemic toxicity.<sup>1,5,9</sup> Therefore, to reduce trans-epidermic water losses, to protect the integrity of the horny layer and to improve the protective role of the skin, it is recommended that a softening ointment without a preservative be applied four times a day in neonates with a gestational age of less than 30 weeks.<sup>1,3,7,10</sup>

It is also recommended that anyone in direct contact



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## Soin des plaies en néonatalogie

### Résumé

Les lésions cutanées observées dans la clientèle pédiatrique, bien que différentes de celles chez l'adulte, nécessitent la prise en considération de différents aspects propres à l'âge et au problème de santé présent. La physiologie cutanée du prématuré, l'impact psychologique d'une plaie chez l'enfant et les facteurs de risque de plaie de pression font partie des aspects à considérer. Cet article propose quelques principes

de base pour le soin des plaies en néonatalogie. Les grands centres pédiatriques traitent maintenant de nombreux nouveaux-nés prématurés de faible poids (500 à 600 grammes) à leur naissance après 24 ou 25 semaines de gestation. La connaissance de certaines caractéristiques de leur physiologie cutanée devient une nécessité pour éviter un préjudice à leur peau fragile et ce, même si le processus de cicatrisation est similaire à celui chez l'adulte.



L'article intégral en français est disponible sur le site Internet de l'ACSP à [www.cawc.net](http://www.cawc.net).



with this group use an adequate hand-washing technique to prevent infections. Furthermore, bathing is only recommended to clean dirty skin and not on a daily basis in the premature neonate.<sup>1</sup> The use of a mild soap or a pH-neutral cleansing agent is recommended to avoid jeopardizing the formation of the skin acid film.<sup>4,11</sup> During a study completed in 1998, Lund et al showed that a skin maturation comparable to that of adults is reached by 30 to 32 weeks of gestational age, whatever the chronological age of the child.<sup>9</sup>

### Types of Wounds Observed in the Premature Neonate

The following wounds have been observed in the low-birth-weight premature neonate:

- Tearing of the epithelium
- Pressure ulcers, friction and shearing
- Chemical or thermal burns
- Latex allergy
- Infiltration

However, the majority of these wounds can be avoided by taking into account the characteristics of the premature neonate skin.

### Tearing of the Epithelium

It is recommended to reduce the use of adhesive products in the premature neonate. However, when it becomes necessary to use adhesive products, here is some advice:

- Apply a hydrocolloid dressing, ideally **thin**, as a base for the fixation of tubes, catheters and monitoring equipment. These dressings should stay in place for at least 24 hours to avoid trauma to the skin due to too frequent changes. The hydrocolloid dressings should be applied on skin surfaces unexposed to pressure. Clinical experience has enabled us to observe that this type of dressing, when applied to a surface exposed to pressure, for instance the back or the occiput, tends to melt and excessively adhere to the skin. One thing to remember is that the neonate is in an incubator or under a heat lamp, which can contribute to increased dressing adherence.
- Avoid the use of liquid or paste skin protection products in ostomate babies since these products usually contain alcohol. Ideally, digestive stomas must

be fitted and a solid skin protector should be applied under the collector apparatus, unless it is already part of the bag. Manufacturers now offer products adapted to premature neonates.

- Avoid the use of products that increase dressing adherence, such as glues, cements and gums. These products contain substances that can cross the skin barrier. They also create a stronger bond than usual between the epidermis and the dermis.
- Use products with micro-adherence and apply lukewarm water to remove the adhesives. The use of solvents is definitely not recommended because of the risk of toxicity.

### Thermal Burns

First- and second-degree burns have been observed in premature neonates, caused by CO<sub>2</sub>, PCO<sub>2</sub> and SO<sub>2</sub> sensors. As a preventive measure, it is recommended to change the sensor locations every two hours and set them at the lowest temperature.<sup>1,9</sup> The use of silver sulfadiazine, the traditional treatment for burns, is not recommended in this group because this product contains substances that can cross the skin barrier and cause harmful side effects. Incidentally, the use of this product is not recommended during the first month of life, even in the full-term neonate.<sup>2</sup>

When the therapeutic option is hydrogel because of the skin permeability in the premature neonate, its actual composition must be checked because some contain unwanted substances (e.g., propylene glycol). Also, the use of hydrogel requires the application of a secondary dressing, which is not always desirable. The one-step procedures are preferable, such as the application of a thin hydrocolloid dressing. This type of dressing promotes a moist environment while not impeding the child's movements.

### Chemical Burns

Some techniques, such as the installation of an umbilical catheter, require the use of irritant disinfectant products. After the procedure, it is important to thoroughly rinse the skin to avoid any risk of chemical burn. This type of burn, often located on the back of the neonate, is usually treated with a micro-adherence perforated silicone gel dressing rather than a hydrocolloid dressing since this surface is

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exposed to pressure. The perforated silicone dressing provides some humidity to the wound while not causing any trauma during its removal.

#### **Pressure Ulcers, Friction and Shearing**

For the treatment of pressure ulcers, mostly located at the occiput, it is recommended to shave the area to properly visualize the extent of the damage to the skin integrity. Once again, clinical practice has confirmed that it is better not to use hydrocolloid dressing on pressure ulcers at the occiput, for the reasons mentioned earlier. The use of a micro-adherence silicone foam dressing combined with a gel free of toxic products promotes a moist environ-



ment. It also reduces the size of the area that has to be shaved, since the removal of the dressing does not cause the tearing of the hairs surrounding the wound. Wounds by friction and shearing have been observed on the neonate's lower extremities. Most often these lesions are due to massages performed during micro-method blood samplings done at the heels (see photo at left). As a preventive measure, it is recommended

to vary the puncture sites and apply strips of thin hydrocolloid dressing to prevent and treat these lesions.<sup>1</sup>

#### **Latex Allergy**

The use of a latex-containing product may cause skin lesions in the premature neonate. Health providers are increasingly aware of this type of allergy and avoid the use of any latex-containing product.

#### **Infiltration**

Solutes sometimes infiltrate despite the use of best techniques. As a preventive measure, vascular accesses are checked every hour and the infusion is stopped at the first sign of infiltration. Some products such as hyaluronidase and phentolamine, given by subcutaneous injections within hours after the infiltration, promote the diffusion of harmful substances, thereby limiting subsequent skin damage.<sup>1</sup>

#### **Conclusion**

Successful intervention with premature neonates requires taking into account the characteristics of their skin physiology. Before applying any topical product on a neonate's skin, it is best to check its exact composition with the manufacturer and find out their recommendations for use in neonatology. As often as not, premature neonate wounds heal rapidly, but as with adults, prevention always remains the best treatment. ☺

This article was modified from: Forest-Lalande L. Helpful hints in neonatology wound care. *Primary Intention*. 2001;9(1), and printed with permission.

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# Surgical Advances in Wound Care: A Canadian Perspective



by Kenneth N.  
Dolynchuk

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**T**he practice of wound care has evolved over the past decade to include technologies to restore the integrity of wounds by means of surgical and biologically active dressings. The types of technologies vary in their applications but impart incredible versatility to the handling of difficult-to-heal wounds.

This paper will include examples of living skin equivalents (LSEs) technology and negative pressure therapy. The use of biologically active dressings in combination with the negative pressure therapy and surgical debridement will be shown to improve the take of skin grafts in radiation ulcer patients. Laser ablation of hypertrophic scars using Erbium YAG laser will be presented as well as some future surgical directions for local wound infection control.

## Living Skin Equivalents (LSEs)

The currently available biologically active dressings share in their ability to provide a composite of human fibroblasts in a collagen matrix. The outer layer of one type is silicone sheeting, which is ultimately removed prior to skin grafting over top. Another type can also be skin grafted over top, but it is usually open until such time as the wound bed is prepared adequately. The use of this latter type has been shown to be of benefit in diabetic foot sores and in venous leg ulcers in clinical trials. The use of the former is reserved mainly for burn wounds.

The benefit of LSEs relates to the fact that the cytokine pathway and/or cellular responses are abnormal in hard-to-heal wounds. Biological dressings are active in that they increase the number of responsive cells in the

wound, shifting the rate of healing toward normal. The structure of LSEs is uniquely bioengineered using human neonatal fibroblasts in a polylactic acid matrix. Advantages compared with alternative management include ready availability without donor site morbidity, lack of allogeneic cells (Langerhans, lymphocytes, etc.), rigorous safety testing and outpatient orientation. The efficiency of one particular type of LSEs showed a 50 per cent vs. 32 per cent healing rate at the 12-week end point in chronic leg ulcers. Disadvantages are the incident cost of the dressing (e.g., \$650 CDN), a limited shelf life and the fact that reimbursement is still an issue.

## Negative Pressure Therapy

Negative pressure therapy was introduced in 1977. It is indicated for incisions, myocutaneous flaps, skin grafts and chronic wounds. However, it is contraindicated in necrotic wounds with eschar, malignant wounds and untreated osteomyelitis. Its mechanism of action includes removal of proinflammatory exudates and fibrin, production of wound contraction and formation of granulation tissue.

In one case a 58-year-old female in renal failure and coronary artery disease presented one week post-CABG. She suffered complete dehiscence of her left thigh saphenous vein donor site, due to heavy colonization with *Staphylococcus aureus*. She was considered unfit to return to the operating room for delayed reclosure and was started on chlorhexidine compresses O.D. for 48 hours prior to beginning negative pressure



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therapy. At six weeks she was nearly healed and able to leave hospital.

The second case is that of a 63-year-old female with a two-year history of an ankle radiation ulcer post squamous cell carcinoma excision and graft. She failed to heal after radiation despite optimal wound care. Osteomyelitis was ruled out with biopsy taken to confirm lack of recurrence. The wound bed was prepared with an enzymatic debriding agent and LSE applications



FIGURE 1

three times over 12 weeks (Figure 1). Her eventual status was that of steady improvement and unstable epithelium on a dense fibrotic base. She still hasn't

healed but is off the negative pressure therapy and being treated with conventional dressings while continuing to stabilize.

In a third case negative pressure therapy was combined with LSEs. The female patient had a severe radiation ulcer on the nape of the right neck after 12,000 rads were given to treat lymphoma and a secondary sarcoma. The area was debrided surgically and a sheet of LSEs applied under a negative pressure therapy dressing that was changed every week. She remained stable and healed off negative pressure therapy. However, during a subsequent winter cruise she developed a recurrence. Further surgery after a trial of a new dressing technology is being considered for the recurrent ulcer. This case illustrates the benefit of combining biological skin substitutes and negative pressure therapy. Although the particular brand of LSEs used in this case is no longer available in Canada, the use of split thickness skin grafts may be used in such a case, with similar results expected.

### Scar Reconstruction

Erbium YAG laser preceded other forms of laser resurfacing but was not commonly employed until recently. Unlike CO<sub>2</sub> laser thermal denaturation of deep dermal structures, it is limited to 2.5–5.0 µ depth. Therefore, the risk of hypertrophic scarring and redness postoperatively is reduced. Patients may first require scar revision to reduce the size of the scar, which may



FIGURE 2

have stretched or undergone hypertrophy, which, in turn, produced an excessive scar matrix. The subsequent scar is usually improved by surgical revision utilizing lateral flap or Z-plasty techniques to

reduce the appearance of the scar. Further revision is then carried out three months later using ablative techniques such as dermabrasion or Er YAG laser. If redness persists beyond six weeks, Nd YAG laser treatment can be used to reduce these problems as well.

As seen in the patient in Figure 2, red ropy scars have persisted after one year. She underwent staged scar revision and laser therapy with the ultimate results being quite satisfactory. In Figure 3 the last surgical revision is seen above the left brow. This will require Nd YAG therapy in four to six weeks.



FIGURE 3

### Future Therapy

Prevention of surgical site infection (SSI) is the ultimate goal of surgeons globally. The use of antimicrobial impregnated suture is one way in which to achieve this.

Innovative technology for prevention of scar formation will also be available soon. In the near future a cream that prevents hypertrophic scar formation will be undergoing final clinical trials, and the need for revision surgery as described above may become less common. The ultimate goal would also be to eliminate other forms of pathological scarring, such as keloid formation. This is under investigation as well.

### Conclusions

As caregivers in wound care, we in Canada stand at the dawn of a new era in terms of providing the best and most advanced treatment to our patients. The techniques exemplified are surgical in their scope but marry well with the overall care of patients. It is hoped that the newer technologies will ultimately aid in treatment of hard-to-heal ulcers and prevent pathological wounds and scars in all patients. ☺



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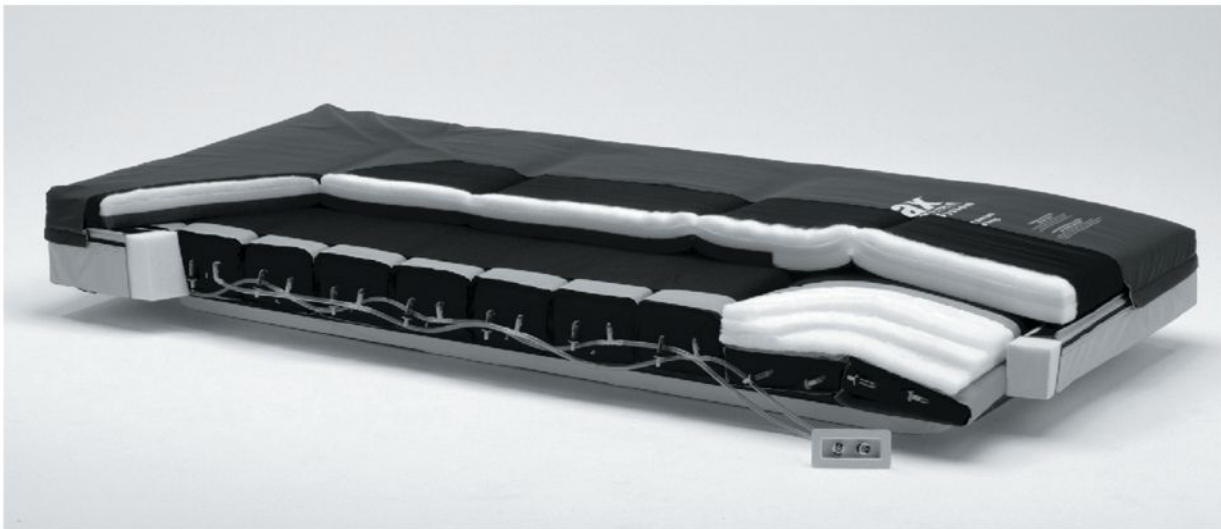


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An Interview with **Dr. Diane Krasner**:

# A Key Contributor to Global Wound Care



Dr. Diane Krasner

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

**Dr. Kasner** is a board-certified WOC Nurse, a Diplomat of the American Academy of Wound Management and a Fellow of the American Academy of Nursing. She has extensive experience in wound, ostomy and incontinence care. She received her bachelor, master and doctorate degrees in Nursing from the University of Maryland School of Nursing and her MA in Adult and Continuing Education from The Johns Hopkins University School of Continuing Studies.

She is on the editorial board of *WOUNDS* and is co-editor of the third edition of *Chronic Wound Care: A Clinical Source Book for Healthcare Professionals*. She currently serves on the Board of Directors of the American Academy of Wound Management, the National Pressure Ulcer Advisory Panel and is president-elect of the Association for the Advancement of Wound Care.



**What is your current role in wound care?**

I work full time as the Wound Care/Infection Control Practitioner at Rest Haven – York, a 167-bed long-term-care facility in York, Pennsylvania (about one hour north of Baltimore). About half my time is spent consulting to the unit-based treatment nurses, developing and revising wound-related policies and procedures, ensuring that products and supplies are available to the residents and the staff, and chairing the Skin Integrity Committee. The rest of my time I wear an Infection Control Practitioner hat. I keep a daily listing of infections and monitor the facility for the prevalence of

key indicators, including urinary tract infections and respiratory infections. I chair the Infection Prevention and Control Committee, which is responsible for the development and implementation of policies and procedures for infection control, including house-wide immunization of our residents. My two roles are really quite complementary, and the ICP role is broadening my horizons and is quite a challenge!



**What was it about wound care that attracted you to specialize in it?**

I think there were two specific aspects of chronic wound care that I found most attractive: developing long-term relation-

ships with patients and the independent role of the wound-care specialist.



**In what areas of wound care have you specialized?**

I have always been interested in chronic wounds. Like many of my generation in wound care, I began with a focus on pressure ulcers, moved on to venous and diabetic ulcers and finally broadened my view to all the other types of chronic wounds. Of course, as a wound, ostomy, continence nurse by generic training I was equally interested in these aspects of care, and many of the lessons learned from ostomy and incontinence care are relevant for chronic wound care.



**How has your role in wound care evolved over the years?**

I have been privileged to practise, study, do research, work in industry and now have come full circle back to the practice setting. Each of these experiences in different environments has broadened my appreciation for the challenge that wound care presents across settings.



**What continuing education do you believe has supported your journey in wound care?**

I was fortunate to be in environments that supported my life-long learning over the past two-and-

a-half decades. All of these educational pursuits, from formal courses to attending national conferences, to local meetings to reading journals, have been essential for sustaining my practice and keeping me current and seeing things with “new eyes” (see the end of the article for my favourite quote #1).

### **Q What is your view on interdisciplinary wound-care teams?**

I think that it is most important to have dedicated, passionate members of the interdisciplinary wound-care team. Ideally, you would have a good mix of specialties as well. But this is not always feasible. Most important is dedication and passion.

### **Q Could you describe what you see as the critical success factors for an interdisciplinary wound-care team?**

There is both a process piece and a content piece needed for success. The process piece involves communication based on honesty and integrity. The content piece involves a commitment to best practices and evidence-based practice as it emerges.

### **Q How can being a mentor in wound care assist health-care professionals in achieving better patient care?**

Every practitioner needs a mentor who can challenge him/her to

grow and develop professionally.

### **Q Who do you consider as your wound-care mentor?**

I have two mentors who have supported and nurtured me through the years: my research mentor, Dr. George Rodeheaver, and my nursing mentor, Louise Colburn.

The time comes when “senior” practitioners like me go on to serve as role models or mentors for others. This is a great honour, really, and I am pleased to be serving as the mentor for Cynthia Fleck, a bright and rising star in wound care in the U.S.!

### **Q How did you get involved in editing the three editions of the book *Chronic Wound Care*?**

Sometimes you are just at the right place at the right time (see below for my favourite quote #2). I was invited early on to serve on the Editorial Board of *Ostomy/Wound Management*. I had decent writing skills from having studied Ancient History and Egyptology at Johns Hopkins University prior to becoming a nurse (BA 1975; MA 1976). It was Health Management Publications who approached me to edit the first edition of *Chronic Wound Care*, when they decided to publish a book as well as their journals, *Ostomy/Wound Management* and *WOUNDS*. Good thing I didn't really know how much work it would turn out to be...

otherwise, I might have turned them down.

### **Q What are some of the biggest challenges that you have seen in the practice of wound care? Do you see them as being positive or negative?**

The biggest positive challenge I see is bringing a consistent standard of care across all communities and all settings — it is a Herculean task! Early in my career I read the autobiography of Ray Kroc, founder of McDonalds. Say what you might about their hamburgers, McDonalds' consistency is truly admirable (I like their hamburgers, too!). Someday, I hope to see that level of consistent best practices in wound care across all settings in all of North America.

### **Q What is the biggest challenge in wound care today?**

I think in the U.S. the biggest challenge is teaching best practices for wound care to the thousands of health-care providers in all disciplines who have had their eyes closed and their ears deafened and who are still practising wound care from the First World War — using Dakin's full-strength wet-

to-dry dressings (or some such thing) on every single type of wound they see. This is a tremendous disservice to the community of patients we serve and bodes very badly for health-care professionalism. It is one of my greatest frustrations and my greatest challenges!

### **Q What role have you played in wound care within Canada?**

It has been my great honour to attend almost all of the CAWC conferences, beginning with the first one in 1995 in Toronto. It has been a joy to watch the growth of the CAWC, and you have inspired us in the AAWC in many, many ways! As incoming president of the AAWC I look forward to working with the CAWC to forge a closer link between our two sister associations!

### **Q Any last comments?**

My favourite quote #1: “The real voyage of discovery consists not in seeking new landscapes, but in having new eyes.” — Marcel Proust

My favourite quote #2: “Chance favours the prepared mind.” — Louis Pasteur



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# Projet de loi n° 90



Yvette Moulin



Louise Forest-Lalande

**Yvette Moulin, inf., M.Sc.**, travaille dans un CLSC de la banlieue de Montréal, après avoir exercé en chirurgie, en soins de longue durée, à l'urgence, en santé du travail, en santé scolaire et aux soins à domicile. En 1999, elle a suivi la première formation interdisciplinaire et internationale en soin de plaies, donnée à l'Université de Toronto. Elle s'intéresse au soin des plaies depuis plus de cinq ans.

**Louise Forest-Lalande, RN, MEd, ET**, a travaillé à Sainte-Justine, un centre hospitalier universitaire mère-enfant de Montréal, comme stomatothérapeute pendant 19 ans. En 1992, elle a obtenu une maîtrise en éducation des adultes. Elle est membre du conseil d'administration de l'ACSP où elle occupe le poste de spécialiste en pédiatrie.

Le 14 juin 2002, le projet de loi n° 90 a été sanctionné pour devenir la Loi modifiant le Code des professions et d'autres dispositions législatives dans le domaine de la santé.<sup>5</sup>

« La Loi modifiant le Code des professions et d'autres dispositions législatives dans le domaine de la santé met à jour les compétences distinctives ou partagées de onze professions de la santé et incite à la collaboration interprofessionnelle. Pour chacune de ces professions, la Loi décrit un champ d'exercice actualisé et réserve des activités professionnelles en fonction de critères de protection du public. Ceux-ci comprennent notamment la compétence requise et les connaissances exigées pour exercer de telles activités ainsi que les risques de préjudice qu'elles comportent pour les patients si elles ne sont pas exercées par des personnes qualifiées. »<sup>3</sup>

En matière de soin de plaies, cette Loi attribue particulièrement à l'infirmière la responsabilité de :

*« Déterminer le plan de traitement relié aux plaies et aux altérations de la peau et des téguments et prodiguer les soins et les traitements qui s'y rattachent. »*

L'infirmière peut déterminer le plan de traitement infirmier lié aux plaies et aux altérations de la peau et des téguments, sans ordonnance individuelle ou collective.

Cette activité confère à l'infirmière une plus grande autonomie dans les soins et le traitement des plaies, des altérations de la peau et des téguments et confirme l'exercice infirmier dans les soins de pieds. La contribution spécifique de l'infirmière réside principalement dans l'évaluation et dans les mesures

préventives liées aux facteurs de risque et le traitement local des plaies et des altérations de la peau et des téguments. Selon le type, la gravité et l'évolution de la plaie, une approche interdisciplinaire doit être privilégiée et les suivis doivent être faits en étroite collaboration avec le médecin traitant.

La pratique et les compétences des infirmières dans ce domaine, sont très diversifiées selon les secteurs où elles exercent et selon les établissements de santé. C'est pourquoi, pour déterminer un plan de traitement, l'infirmière doit s'appuyer sur certains principes :

- s'assurer d'avoir les connaissances et les habiletés nécessaires pour déterminer et appliquer les soins et les traitements infirmiers requis par la condition du client, y compris pour le débridement et les produits et les pansements à utiliser ;
- baser sa pratique sur les résultats probants ;
- tenir compte de la complexité de la plaie ou de l'altération de la peau et des téguments (p. ex. : exposition de structures profondes, signes d'infection, site anatomique) ;
- s'assurer de connaître le diagnostic médical lié à l'origine de la plaie, notamment dans le cas d'ulcères des membres inférieurs ;
- connaître les indications et les contre-indications cliniques aux soins et traitements prévus, p. ex. : lorsque des mesures thérapeutiques (nettoyage, débridement, produits et pansements) sont envisagées pour certains types de plaie (plaie de pression, ulcère veineux, ulcère de pied diabétique, plaie chirurgicale cicatrisant par seconde intention, plaie trau-

matique et brûlure) ;

- obtenir une ordonnance médicale individuelle ou se référer à une ordonnance collective lorsqu'on envisage l'utilisation d'un produit avec agent médicamenteux (p. ex. : agent de débridement enzymatique) ;
- se reporter à la liste en vigueur dans l'établissement lorsqu'il s'agit de médicaments et produits en vente libre, avec ou sans agent médicamenteux ; en pratique privée, utiliser les médicaments en vente libre ;
- aviser le médecin traitant de l'évolution de la plaie et des modifications apportées au plan de traitement infirmier ;
- consulter ou référer à d'autres professionnels de la santé, au besoin, ou y diriger le client ;
- respecter les règles de soins infirmiers en vigueur dans l'établissement pouvant préciser les recommandations cliniques liées au traitement des plaies, les éléments qui requièrent une ordonnance et le rôle des membres de l'équipe de soins et de l'équipe interdisciplinaire. » (Mercier et al. 2003 pp. 31-32)

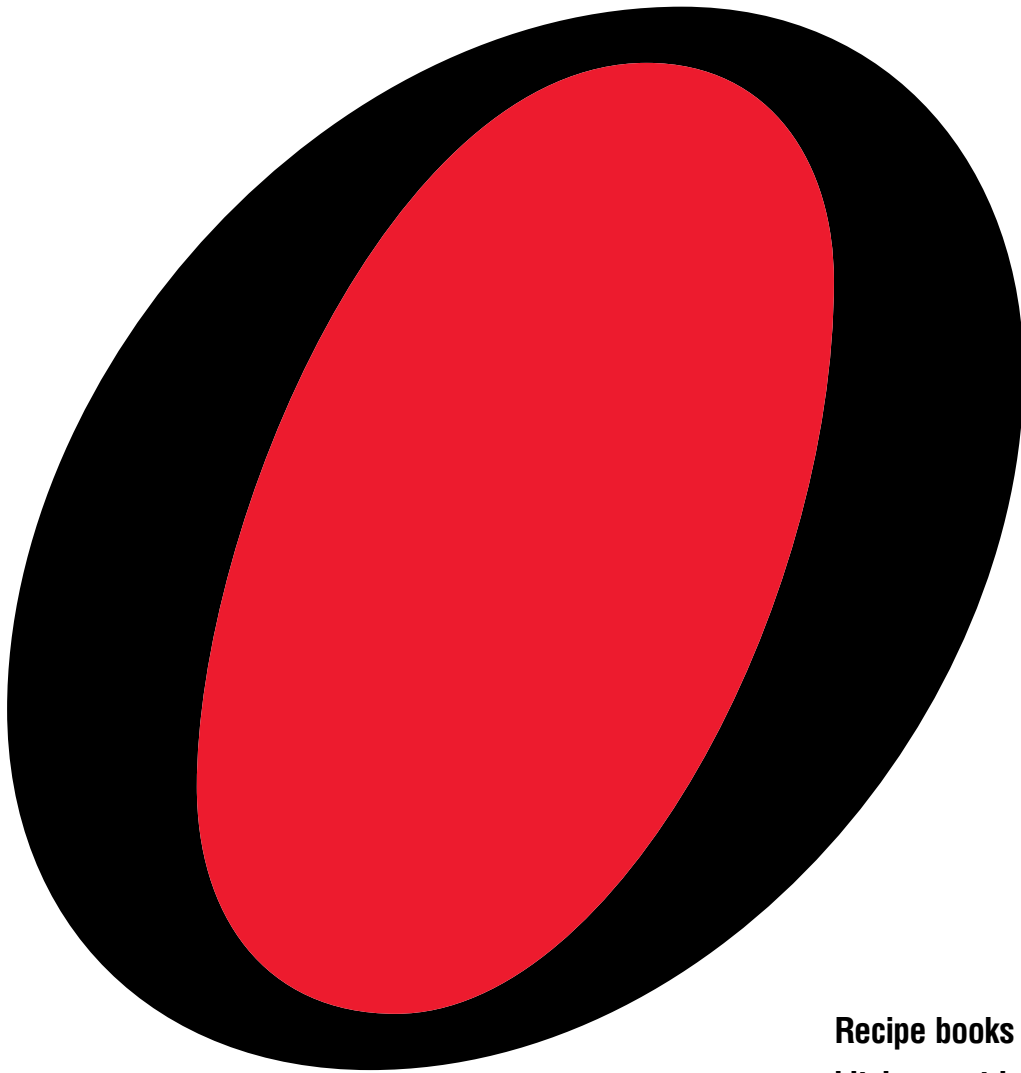
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An English version of this article is available in the Wound Care Canada section of the CAWC Web site at [www.cawc.net](http://www.cawc.net).





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# Cost-effective Wound Care:

## How the Advanced Practice Nursing Role Can Positively Affect Outcomes in an Acute-care Setting



BY  
Laura M. Teague  
AND



James L. Mahoney

**A**cross the country, hospital and home-care administrators, health-care professionals and the government are trying to manage the rising costs of health-care. There are issues around providing optimal care for an aging population while containing the costs. The price of a wound dressing alone is not a reflection of the overall cost effectiveness in treating a wound. All aspects of the delivery of care, including materials and resources, must be considered.

Working in acute-care is like navigating through white water. Competing priorities and acuity levels can cloud and minimize some of the basic health-care needs for patients.

The acute-care nurse practitioner (ACNP) role within an acute-care setting has afforded our hospital the ability to operationalize best practices in wound care, thus contributing to cost-effective health care.

One case illustrates the role of the ACNP within the acute-care centre. It involves Mr. L., a 21-year-old man with type I diabetes. This patient was admitted to the medical unit with diabetic keto-acidosis. His past medical history included retinopathy, nephropathy and neuropathy. In addition to his end-organ compli-

cations, Mr. L. had three traumatic wounds on the pretibial area of his left leg. The largest was approximately 3 cm x 3 cm. Mr. L. was referred to the nurse practitioner for wound care.



FIGURE 1



When his history was obtained, Mr. L. revealed that his health-care team had prescribed a local antibiotic cream to the affected areas. This treatment had been performed daily for eight months, with no change in the wound status. He was told by his doctor that because he was diabetic, the wounds would never heal and he would likely lose his leg.

His physical assessment revealed three wounds, classified as AI according to Falanga's chronic wound assessment tool<sup>2</sup> (see Figure 1). The leg was edematous; there were pulses present, and no signs of vascular insufficiency. There were no obvious signs of acute infection.

After review and correction of metabolic derangements, appropriate investigations were organized: a duplex scan and wound cultures. Bacterial balance and edema were identified as major factors influencing delayed wound healing.<sup>1,4,5</sup> In collaboration with the medical team, the patient was prescribed nanocrystalline silver dressings to the wounds and external modified elastic compression to control the edema in the lower leg.<sup>6</sup>

The patient was discharged to community care and was seen twice in the first week and weekly thereafter. At week three, Mr. L. returned to the clinic with closed wounds (see Figure 2). He was educated regarding the importance of edema control (for life). Elastic compression stockings were prescribed and



fitted in the ambulatory clinic. He was also referred to the Multidisciplinary Diabetes Complications Clinic for comprehensive diabetes care.

Cost-effectiveness is defined as "the cost to achieve the desired outcome."<sup>4</sup>

If we compare the two treatment regimens, and if we only consider the 'cost' of the products, the health-care system suffers with inappropriate use of scarce resources (see Table 1). ☺

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**Laura M. Teague, RN, MN, ACNP Wound Care;** and **James L. Mahoney, MD, FRCSC,** are with the Division of Plastic Surgery, University of Toronto, Mobility Program, St. Michael's Hospital, Toronto, ON

TABLE 1

### Cost Comparison: Previous Management vs. Best Practice

| Previous Care              | Cost               | Present Care                              | Cost                 |
|----------------------------|--------------------|---|----------------------|
| Nursing labour             | \$9,600.00         | Duplex scan                               | \$161.30             |
| \$40.00 x 240 visits       |                    | Nursing labour                            | \$240.00             |
| Fucidic acid cream         | \$ 240.00          | \$40.00 x 6 visits                        |                      |
| Gauze bandages             | \$ 360.00          | Multi-layer bandage x 4                   | \$100.00             |
| Gloves                     | \$ 48.00           | Nanocrystalline silver 4x4 dressings (x2) | \$26.00              |
|                            |                    | Dressing trays                            | \$6.00               |
|                            |                    | Gloves                                    | \$1.20               |
| <b>Total</b>               | <b>\$10,248.00</b> | <b>Total (best practice)</b>              | <b>\$534.30</b>      |
| <b>Outcome</b>             | <b>No healing</b>  | <b>Outcome</b>                            | <b>Closed wounds</b> |
| <b>Difference in cost:</b> |                    |   | <b>\$9,713.70</b>    |

# A Case Study for Electrical Stimulation on a Stage III Pressure Ulcer



BY  
Jill Allen  
AND



Pamela E. Houghton

**R**esearch has shown that tissues in living organisms possess an electrical current. Our skin is negatively charged, and deeper tissues have a positive charge. This electrical system influences wound healing by attracting repair cells, changing cell membrane permeability, enhancing cellular secretion through cell membranes and orientating cell structures.<sup>1</sup> When a break in the tissue occurs, a new current develops between the deep structures and skin. Normally this current continues until the tissue heals. However, chronic wounds lack this current of injury.<sup>2</sup>

Electrical Stimulation (ES) therapy is the use of an electrical current to transfer energy to a wound. It replaces the current that develops endogenously when the tissue is broken, consequently accelerating the healing process. It produces a number of cellular processes and physiological responses that are important to wound healing: stimulation of fibroblasts to enhance collagen and DNA synthesis, an increased number of receptor sites for growth factors, alteration in direction of fibroblast migration, activation of cells in the wound site, improved tissue perfusion, and decreased edema. These cellular responses result in more collagen deposition and angiogenesis, greater wound tensile strength, and a faster wound closure rate.<sup>3</sup>

Treatment protocols for polarity, electrode placement, pulses per second and voltage vary depending on the research study.<sup>4</sup> A safe and effective treatment for chronic wounds is the high-voltage pulsed current, which has a waveform of short-duration, high-intensity

pulses with a long inter-pulse interval. The short-duration pulses combined with a long inter-pulse interval produce a very low total amount of current that is sufficient to promote healing.

The electrical current delivery is through a set-up using a wet active electrode made of saline-soaked gauze or hydrogels applied directly to the wound bed. Placement of a larger (two to four times the size of the active electrode) dispersive electrode is on the intact skin  $\geq$  six inches from the wound. Maintaining a moist wound bed is a co-requisite before, during and after the treatment when using ES so that the current flow is sustained.

Numerous clinical studies have demonstrated that ES increases the closure rate of pressure ulcers and ulcers of mixed etiology.<sup>5-10</sup> ES is the only adjunctive therapy with sufficient evidence to warrant recommendation by the Agency for Health Care Policy and Research (AHCPR), the Canadian Association of Wound Care (CAWC) and the Registered Nurses Association of Ontario (RNAO) for use in enhancing pressure ulcer healing.<sup>11-12</sup>

In 1999, the strength of evidence rating increased to a Level A, based on five original randomized controlled trials, plus a 1994 trial.<sup>13</sup> The panel suggested using ES on stage III, stage IV or recalcitrant stage II pressure ulcers when optimum wound healing practices are ineffective.<sup>14</sup>

Recent reports of prevalence of chronic wounds in Canada estimated the prevalence of pressure ulcers to be 25.1 per cent in acute-care settings, 29.9 per



A detailed version of the case history outlined in this article can be found in the *Wound Care Canada* section of the CAWC Web site at [www.cawc.net](http://www.cawc.net).



cent in non-acute facilities and 15.1 per cent in patients in home-care settings. Various studies estimate the cost to heal one ulcer ranges from U.S. \$5,000 to \$25,000, and the total financial burden runs well over U.S. \$5 billion annually.<sup>6</sup> These figures do not address the issues of quality of life, pain or deconditioning for the client who cannot physically afford immobilization in bed for an extended period.

Due to the huge number of variables, it is difficult to find consistent timeframes as to when pressure ulcers should be closed. General clinical expected outcomes of treatment are a 20–30 per cent decrease in size within two to three weeks. The goal of treatment is accelerated wound closure, along with resumption of normal activity and level of participation.

Clients interested in a more conservative approach to accelerated wound closure versus surgical repair have the option of adjunctive therapies. This case presentation highlights an interdisciplinary approach to the delivery of ES in conjunction with optimal wound management that resulted in wound closure within 12 weeks. Wound tracings and photography tracked the progress of wound closure every one to two weeks.

The Web Connect component of this article gives a detailed case history of Mrs. L., an active 54-year-old widow with complete T7/8 paraplegia following a traumatic motorcycle accident more than 30 years ago. She sustained a stage III pressure ulcer on her left ischial tuberosity following a traumatic transfer from wheelchair to toilet. An overview of the case study follows.

An interdisciplinary team meeting convened in the client's hospital room to discuss her care once she was discharged. The team included the client, a wound specialist from the hospital, a physiotherapist consultant specializing in the treatment of chronic wounds, a hospital physiotherapist, a community wound ostomy continence nurse (WOCN/ET) and a case manager from the Community Care Access Centre (CCAC). Key issues identified during the meeting were as follows:

- Pressure off-loading of wound
- Reduce further injury by adjusting transfers – assess and educate PSW and patient
- Standard wound-care practices must be followed (clean, maintenance of a moist wound bed,

debridement, protect peri-wound tissue)

- Physiotherapist consultant to develop a treatment protocol for the home
- Client to order equipment and arrange delivery
- ES to be applied at each dressing change, on daily basis
- Physiotherapist consultant to train nurse doing daily dressing changes how to set up ES and apply preset parameters
- Need for continuity of care in the community by having one or two nurses doing most dressing changes and applying ES
- Regular reassessment by the physiotherapist consultant to assess wound closure and adjust treatment parameters accordingly. This was required on a weekly basis initially and subsequently occurred bimonthly.



ES therapy set-up

## Results:

### Wound Healing

The initial size of the wound when Mrs. L. arrived home was 9.3 cm<sup>2</sup> (see Figure 2). The pressure ulcer progressively decreased in size over the next three weeks to 6.7 cm<sup>2</sup>. However, closure was limited due to persistent undermining. The

wound size increased with de-roofing during week six. Subsequently, rapid wound healing followed over the next four weeks with complete closure during week 12 (see Figure 3).

## Costs

Total cost for this 12-week community wound-care program was \$27,632 or approximately \$9,000 per month. Approximately half of the costs were incurred by the client herself. The cost of the ES was \$1,477.46, which was relatively minimal considering overall costs. These costs included reimbursement for professional and support staff, wound-care supplies, rental of equipment and loss of potential income.

*Continued on page 36*

**Jill Allen, RN, WOCN/ET**, is an employee of Saint Elizabeth Health Care in London, ON. She is actively involved in wound management.

**Pamela E. Houghton, BScPT, PhD**, is Associate Professor at the school of Physical Therapy, University of Western Ontario, London, ON.





Figure 2  
Stage III pressure ulcer prior to onset of ES therapy.



Figure 3  
Stage III pressure ulcer after 12 weeks when wound had closed.

## Discussion

The wound closed 22.58 per cent the first week Mrs. L. was home from the hospital. By week three, the wound had only closed an additional 6.9 per cent. Following the de-roofing, the wound decreased in size an average of 56.38 per cent per week.

Rather than obtaining the expected clinical outcome of a weekly 10 per cent decrease in the size of the wound, we achieved more than five times the expected rate following de-roofing.<sup>17</sup> We anticipate the time for wound closure would have been much faster had the de-roofing procedure been available sooner than six weeks post discharge. De-roofing during the course of treatment initially created a negative impact on wound measurements. However, including de-roofing as a negative value still results in an overall average of 19.85 per cent decrease in wound size per week over the 12-week period. Results remain more than twice the anticipated clinical outcome.

Costs associated with treating pressure ulcers in the community are significant. Previous accounting of their costs to the Canadian health-care system is not available. Even with an accelerated wound closure rate induced by ES therapy, total costs are approximately \$9,000 per month. The financial burden that this medical condition imposes on the patient is also significant. Fortunately, this patient

was able to afford the additional costs and to employ private services for ES therapy. Clearly, the cumulative costs would have continued to increase had the wound remained open for a longer period of time. ☺

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# Dr. Gary Sibbald Answers a Question on Creams and Ointments



R. Gary Sibbald

**Q What creams and ointments should I use on my patients with leg and foot ulcers?**

## **A Moisturizers**

There are two ways to moisturize the skin: lubrication and hydration. Lubrication adds an external covering of an oily substance to prevent insensible water loss. Lubricating agents should not have lanolin or perfumes, especially for our leg ulcer patients where we sensitize 50 to 70 per cent of the patients we treat. Hypoallergenic lubricating creams should be used instead. Humectants bind water, and the superficial layer of the skin (stratum corneum) requires a 10 per cent moisture content to stay intact.

## **Red Skin**

Topical steroid creams and ointments are the mainstay for treating stasis and contact dermatitis of the lower leg and foot. Creams contain preservatives to prevent bacterial contamination because of the continuous phase of cream water with a little oil added or suspended. Ointments have a greasy or petrolatum-like base, and they will not support bacterial growth, so a preservative is not required. Preservatives, particularly those containing or releasing formaldehyde can cause allergies. In my practice, I divide topical steroids into five groups depending on the degree of inflammation (redness) and the location that I am treating (for example, the bottom of the foot will require high-

er strength steroids to penetrate). Table 1 compares each of the classes to hydrocortisone, which is assigned an arbitrary concentration of 1x potency. Remember that a topical steroid has its potency determined by substitutions in the steroid ring, and the relative concentration is meaningful only for the steroid molecule in question. For example, Betamethasone 0.1% valerate is six times more potent than 1% hydrocortisone.

## **Ulcer Margins**

It is very important to protect peri-ulcer skin. There are four main considerations in my toolkit:

1. Use zinc oxide paste. This is simply zinc oxide powder in

*Continued on page 47*

TABLE 1

### **Relative Topical Steroid Potencies**

|     |                                |   |
|-----|--------------------------------|---|
| x1  | 1% Hydrocortisone              | Mild red areas on legs – taper to moisturizer when erythema fades   |
| x3  | Betamethasone 0.05% valerate   | Moderate erythema on legs   |
| x6  | Betamethasone 0.1% valerate    | Severe erythema on the legs or mild changes on the plantar aspect of the foot   |
| x9  | Lidex or Halog (full strength) | Blisters on the legs or moderate erythema on the plantar aspect of the feet   |
| x12 | Dermovate, Ultravate           | Severe erythema on the plantar aspect of the feet or if systemic steroids are contemplated for a dermatitis elsewhere |

### **R. Gary Sibbald, BSc, MD, FRCPC (Med, Derm), MACP, DABD,**

is the Associate Professor of Medicine and Director of Continuing Medical Education, Department of Medicine, University of Toronto. He is a board-certified internal medicine and dermatology specialist in both Canada and the U.S. based at the University of Toronto and in private practice in Mississauga. He has had a special interest in wound-care education, research and patient care for the past 15 years. He is the clinical section editor for *Wounds*, an international advisor for the *Journal of Wound Care* and co-editor of the third edition of *Chronic Wound Care: A Clinical Sourcebook for Healthcare Professionals*.

# Lifelong Learning: A Pathway to Expert Practice



BY Heather Orsted

**T**heorists have studied and defined the many aspects of nursing, yet the role of the nurse in his/her environment of practice remains complex and elusive. The practice of nursing, for the nurse, is often difficult to articulate and frequently remains invisible and undervalued.<sup>1</sup> Though nursing is couched in theoretical frameworks, rarely will bedside nurses define their role based on a framework. It is more likely they will define it based on a skill set of actions, a body of knowledge, an attitude or a combination of all three. Understanding what it takes to make and maintain nursing as a part of one's life requires an understanding

of the practice of nursing in its entirety. Knowledge appears as the cornerstone of nursing, and Heath<sup>2</sup> acknowledges the traditional theory model that is applied to nursing (see Figure 1).

Liaschenko and Fisher<sup>1</sup> theorize that nursing work requires specific knowledge and actions and believe strongly that nurses must learn to articulate and recognize the scope of their work. They define three different types of knowledge required in nursing to provide direct patient care:

1. *Case knowledge* is the knowledge of pathophysiology, disease processes, pharmacology and other therapeutic protocols.

## Traditional Theory Model<sup>2</sup>

FIGURE 1



## Nurses Knowledge<sup>1</sup>

FIGURE 2



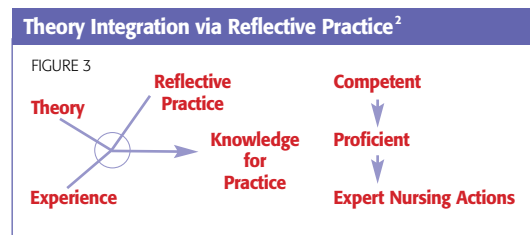
The social-patient-person knowledge bridge requires capabilities other than biomedical knowledge to connect the nurse to the other players, such as physicians. This connection enables the nurse to know the skill and working patterns of other care providers, and allows the nurse to match the required care or service with the appropriate provider. The social-patient-person knowledge connects the nurse with the patient. The nurse can then explore how the patient interacts with his/her environment in relation to his/her illness.

These levels reflect changes in three aspects of skilled nursing performance:

1. Movement from reliance on abstract principles to the use of past concrete experience as paradigms
2. Change in the learner's perception of the demand situation where the learner's focus is more on the whole situation in which only certain parts are relevant
3. Passage from the detached observer to involved performer, in which the performer is engaged in the situation

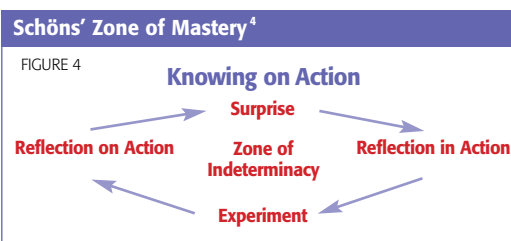
**Heather Orsted, RN, BN, ET,** is currently the Chair of the CAWC Education Committee. She is a co-director of the University of Toronto's International Interdisciplinary Wound Care Course and has made major contributions to wound-care education nationally and internationally.

2. *Patient knowledge* is the knowledge of how an individual becomes identified as a patient, knowledge of the individual's response to treatment and how to get things for the individual within and between institutions.
3. *Person knowledge* is the knowledge of the individual as a self with a personal biography who occupies a certain social space and acts according to his/her own desires and intentions for reasons that make sense only to him/her.



These clear designations of knowledge, according to Liaschenko and Fisher<sup>1</sup>, offer the nurse a language to support the interaction between knowledge and action. They further identify another, more elusive type of knowledge – *social knowledge* – which encompasses the co-ordination of care (transmission and co-ordination of information) between the three more common types of knowledge. Although often undervalued and unrecognized, social knowledge is described as having importance in that it links the three types of formal knowledge together (see Figure 2). They further theorize that this informal, practical knowledge is not fully understood and articulated, yet it is essential to nurses' ability to make judgments, act wisely and get the work done. Unfortunately work is most often seen as an endpoint or an outcome with little thought given to the process.<sup>1</sup>

The competency levels identified by Benner<sup>3</sup> allow the setting of performance parameters from novice to expert, thereby enabling the nurse to be aware of his/her lack of knowledge.<sup>2</sup> Heath<sup>2</sup> uses the



Benner model to contribute to and improve the theory model by defining the growth of the expert practitioner, stating nursing theory alone is insufficient to produce higher levels of performance (Figure 3). Nursing actions, according to Heath, are rarely simply right or wrong but are preformed at different levels with both formal theory and experience contributing to their decision making.

Heath links traditional knowledge with the experience component of Benner and then adds the contribution of Donald Schön<sup>4</sup> to describe the benefits of reflective practice. Schön suggests that the capacity to reflect on action so as to engage in a process of continuous learning is one of the defining characteristics of professional practice. His theory explores the development of the capacity to reflect in action (while doing something) and reflect on action (after you have done it), which has become an important feature of professional training programs in many disciplines (Figure 4). It is seen as a particularly important aspect of mentoring the new health-care professional.<sup>5</sup>

By incorporating reflection into practice, Heath suggests that an awareness of unknowing occurs that allows the nurse to know he/she cannot completely under-

stand the client, which keeps him/her alert to the client's perspective of the situation.<sup>6</sup> Therefore, assumptions based on the nurses' subjective view of reality may be avoided; the nurse listens to the client and a true working relationship can be established. It is on this foundation that the CAWC strives to support a pathway to advanced practice by providing interlinked progressive

*Continued on page 40*

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### Suggestions for Life-long Learning

- Participate in the CAWC S-Series
- Take wound-care courses
- Attend wound-care conferences
- Subscribe to wound-care publications
- Develop a relationship with a mentor/become a mentor
- Expand your professional network through discussion forums, Web sites, wound care events, courses
- Visit other wound-care facilities

learning based on the principles of Benner<sup>3</sup> and Schön<sup>4</sup> (Figure 5).

However, learning can only occur through recognition and acknowledgement of clinically related knowledge and learning needs (case, patient and personal knowledge, including social knowledge). According to Lavery<sup>7</sup>, knowledge is seen as the best understanding we have been able to produce thus far, not as a statement of what is ultimately real. The challenge to gain knowledge is life-long. The CAWC endeavours to

support safe, competent growth and development of knowledge, skills and attitudes as we continue to explore best practice initiatives and creative educational methods in which to deliver them. ☺

### Additional Reading

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**Do you have a wound-care colleague who is not on the Wound Care Canada mailing list? Send us their name and address at [cawc@sympatico.ca](mailto:cawc@sympatico.ca) and we'll add them to the list!**

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# S3 Reflective Learning & Practice Portfolio



BY Heather Orsted

**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.

*"The beginning of knowledge is the discovery of something we do not understand." – Frank Herbert*

The CAWC is pleased to present the third part in its three-part educational series. The S3 Reflective Learning & Practice Portfolio is provided to all those who have completed the Knowledge and Skills-Learning sections (S1/S2) of the S-Series. The S3 provides a framework that is designed to assist you to further identify the knowledge and/or skills required for optimal development of your wound-care practice.

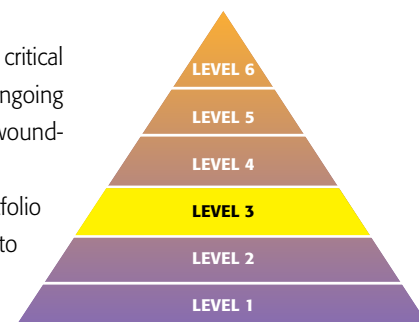
The S3 assists you, through reflection, to determine what you know (learning inventory and critical pathway) and what you don't know (reflective learning and practice framework). The portfolio consists of three self-

directed exercises that, upon completion, will assist you in:

1. Supporting the development of your career through a systematic, reflective process
2. Presenting a portfolio of your wound-care knowledge, skills and experience
3. Identifying gaps in your knowledge, skills and experience and supporting a process to fill the gaps
4. Providing a self-directed critical pathway toward the ongoing development of your wound-care expertise

Once completed the portfolio may be sent to the CAWC to be reviewed in detail by an experienced clinician/

educator who will provide you with comprehensive feedback as you move toward expert practice. Participants who submit their portfolios will receive a CAWC Seminar Series Certificate of Completion for the entire S-Series, and more importantly, will have prepared a Reflective Learning and Practice Portfolio that will move them toward expert practice. 🙌



you an experience that I had last year.

The CAWC conducts educational wound-care seminars called the S-Series that are presented annually in different locations all across Canada. This year it will be presented in four cities.

I attended the S-Series in June 2003 in Vancouver. It was a great opportunity for

My name is Christine Pearson. I work as a Wound Clinician for Vancouver Coastal Health in the local community. I would like to share with

networking with other professionals who shared a passion for wound care. Prior to attending the Series, I read the assigned articles, which were informative and up-to-date.

On the first day we learned or reviewed:

- the principles of wound healing
- best practices for wound bed preparation
- prevention and treatment of pressure ulcers
- venous leg ulcers
- diabetic foot ulcers

We used workbooks, reviewed case studies and participated in interactive sessions with multidisciplinary expert opinion leaders

from across Canada.

The second day we practised our hands-on skills with the Doppler, compression wraps and sharp debridement. You have never seen so many pigs' feet in one room!

The weekend was comprehensive and educational – and fun to boot. I highly recommend this series to anyone interested in wound care.

Upon finishing the weekend I felt re-energized and enthusiastic to go back to my facility. I felt confident incorporating the new information into my practice and sharing some of the knowledge with the nurses and physicians with whom I work.

# Negative Pressure Therapy in the Community: Analysis of Outcomes



BY  
Dorothy E. Phillips  
AND



Samara J. Rao

Negative pressure therapy is an adjunctive therapy used to improve the rate of wound healing. Negative pressure therapy consists of inserting an open cell foam dressing into a wound bed and covering the foam with an occlusive drape. Non-collapsible tubing is embedded into the foam and connected to a small pump that contains a disposable canister to collect wound exudate. The pump applies controlled sub-atmospheric pressure that can be continuous or intermittent within a range of  $-50$  mmHg to

$-125$  mmHg.<sup>1</sup> The sub-atmospheric pressure is postulated to increase blood flow, decrease edema and bacterial count, and promote the formation of granulation tissue.<sup>2</sup> The exact mechanisms by which negative pressure therapy influences wound healing are unknown.

Negative pressure therapy has been used in the Capital Health Region since October 2000. Criteria for the use of negative pressure therapy were incorporated into the *Regional Wound Care Guidelines* in 2001. These criteria

indicate that negative pressure therapy can be applied to the following wounds: pressure ulcers and other chronic wounds, including venous stasis ulcers, acute and traumatic wounds, dehisced wounds and over meshed grafts.<sup>3</sup> Selection criteria in the Capital Health Home Care Program are consistent with the *Regional Wound Care Guidelines*.

This study was a retrospective audit examining the outcomes of all clients treated with negative pressure therapy in the Capital Health Home Care Program over a 15-month period (January 1, 2002, to March 31, 2003). Data collected included wound type, length of treatment, outcome and cost. Descriptive statistics were used to analyze the data. A positive outcome was defined as "granulated to skin level, ready for skin graft, or complete closure."

## Results

Eighty-one clients were treated with negative pressure therapy during the 15-month period. The average length of treatment was 30 days (range: 1–217 days). Positive outcomes were achieved in 50.6 per cent ( $n=41$ ) of the cases. Complications included

TABLE 1

### Summary of Findings

| Wound Type              | Number of Clients | Average Length of Treatment | Percentage of Positive Outcomes |
|-------------------------|-------------------|-----------------------------|---------------------------------|
| All Wounds              | 81                | 30                          | 50.6                            |
| Other Wounds            | 7                 | 25                          | 86.0                            |
| Diabetic Ulcers         | 9                 | 47                          | 77.7                            |
| Pilonidal Sinus         | 12                | 26                          | 66.6                            |
| Abdominal Wounds        | 26                | 29                          | 53.8                            |
| Vascular Surgery        | 2                 | 28                          | 50.0                            |
| Breast Wounds           | 6                 | 26                          | 40.0                            |
| Muscle flap/Graft       | 3                 | 80                          | 13.3                            |
| Pressure Ulcers         | 6                 | 25                          | 16.6                            |
| Non-Diabetic leg Ulcers | 8                 | 16                          | 12.5                            |
| Irradiated Tissue       | 3                 | 48                          | 0                               |



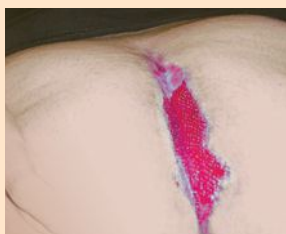


Figure 1: Before and after negative pressure therapy.

wound deterioration (12.3 per cent, n=10), and infection (3.7 per cent, n=3). The cost of negative pressure therapy during this period was \$248,200, which includes equipment rental, dressings, canisters and nursing time.

The wounds were subdivided into groups (see Table 1) and analyzed by wound type. The results clearly demonstrate that the benefits of negative pressure therapy vary depending on the wound type. Only four of the groups resulted in a higher-than-average proportion of positive outcomes when compared with all wounds included in the study. As illustrated in Table 1, wounds included in the 'other' group appeared to benefit most.

## Discussion

Delayed wound healing is a challenge in the community setting, and often requires daily or more frequent nursing visits. With conventional wound-healing methods, it may take several

months to heal the wound. The use of negative pressure therapy has been proposed as a novel method of manipulating the chronic wound environment to assist and accelerate wound healing.<sup>4</sup> Although initial clinical results are promising, the gap between available scientific evidence and everyday clinical practice does not give a balanced view of the appropriate use of negative pressure therapy.<sup>1</sup> Negative pressure therapy is an expensive treatment modality, and, because the costs are high, a recent consensus report suggests that use as a first-line therapy is inappropriate.<sup>1</sup> However, others suggest that negative pressure therapy has the potential for saving money if it is used on the "right patient, the right wound, at the right time."<sup>5</sup>

In this study, valuable information was gained in determining how negative pressure therapy may best be used. For example, management of a pilonidal sinus can often be problematic, and if managed with conventional

methods, can take from three to six months or more to heal. In the community, saline soaked gauze dressings are labour intensive. As shown in Table 2, normal saline-soaked gauze dressings may be less costly, but negative pressure therapy is more cost-effective because labour costs are reduced and the average healing time is less when compared with conventional methods. One case, shown in Figure 1, clearly illustrates the benefits for both the client and the program. The client had been plagued with recurrent pilonidal sinus for three years. After the third excision, negative pressure therapy was initiated. With three weeks of therapy, the wound had 100 per cent granular base, and epithelial tissue was begin-

## About Capital Health and the Home Care Program

Capital Health is one of the largest integrated health regions in Canada, providing health services to 980,000 residents in the region, and specialty services to Northern Alberta. The Home Care Program provides health and support services to people with health needs who wish to remain in their homes.

**Dorothy E. Phillips, RN, BScN, MN, ET,** is an Enterostomal Therapist at Capital Health Home Care in Edmonton, AB. She is a member of the CAET and the CAWC. She has responsibility for the co-ordination of negative pressure therapy for home-care clients living in the north half of the Capital Health region. She is a member of the Home Care Skin and Wound Committee, and also a member of Capital Health Regional Wound Care Committee.

**Samara J. Rao, RN, BScN,** is a Case Manager on the Short-term Intervention Team at Capital Health Home Care in Edmonton, AB. She is experienced in working with clients treated with negative pressure therapy. Since the spring of 2003, she has taken over responsibility for the co-ordination of negative pressure therapy for home-care clients during the Home Care Enterostomal Therapist's absence. She is currently studying in the CAET Enterostomal Therapy Nursing Education Program.

TABLE 2

## Cost-effectiveness Example: Pilonidal Sinus Negative Pressure Therapy vs. Standard b.i.d. Dressings

| Weekly costs  | NS Gauze | Negative Pressure |
|---------------|----------|-------------------|
| Labour        | \$560*   | \$135*            |
| Supplies      | \$135    | \$206             |
| Equip. Rental | –        | \$413             |
| Total         | \$695    | \$754             |

\*excluding travel



Figure 2: Before and after negative pressure therapy.

ning to migrate across the wound edges. Complete closure was achieved in 42 days.

Diabetic leg ulcers are known to be a high risk for lower extremity amputation. Consequently, healing these wounds quickly may result in a substantial reduction in the number of amputations. Preliminary studies have shown that negative pressure therapy may be beneficial.<sup>6</sup> This

study also supports the use of negative pressure therapy in the treatment of indolent diabetic leg ulcers. One case, shown in Figure 2, clearly illustrates the benefits. The client's medical status was poor, and the physician thought that there was little potential for healing. The wound was large and deep. There was a 10 cm sinus tract on the left side. Negative pressure therapy

was discontinued after 29 days. The wound had 100 per cent granular base, with a few areas of hypergranulation. Conventional wound dressings were used to bring the wound to complete closure four weeks later.

Pressure ulcers present a significant challenge in the community setting. At a time of increasingly scarce resources, these ulcers continue to consume an excessive amount of resources in terms of nursing time and advanced wound products.<sup>7</sup> Although negative pressure therapy has shown some potential in the facility sector, the outcomes are generally poor when the client is


discharged to the community. One of the main reasons is that the availability of specialty support surfaces is severely limited in the community. When clients were discharged home without a specialty support surface, in most cases the wound deteriorated rapidly, and negative pressure therapy was discontinued.

Some researchers have suggested that negative pressure therapy may be more beneficial in treating acute wounds than chronic wounds.<sup>6</sup> However, our study did not support that notion. Acute wounds were included in six of the groups. Three of the groups had a higher

*Continued on page 45*

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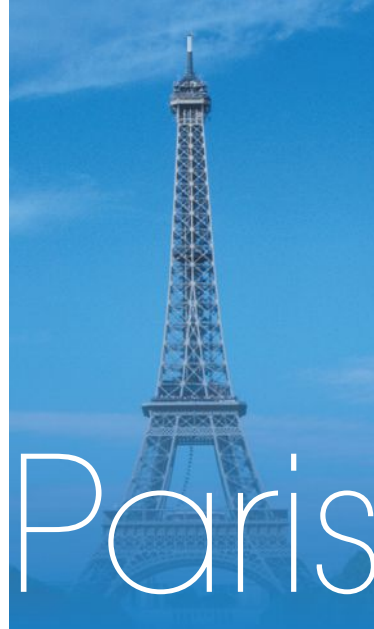
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For complete information visit the CAWC Web site at [www.cawc.net](http://www.cawc.net).



# The World Union of Wound Healing Societies (WUWHS)

# Meeting in Paris



BY Gary Sibbald

The World Union of Wound Healing Societies represents a collaborative initiative that now involves the participation of 40 wound-care societies around the world. The inaugural meeting was an Australian effort in September 2000 that linked 12 or more societies and the Australian Wound Healing Society in Melbourne. The co-operative effort is alive and flourishing as we move toward the Paris meeting July 8 to 13, 2004. This is the second in a schedule of meetings planned to be held every four years.

This meeting will bring together the hosting societies, including the French Wound Healing Association, European Union of Wound Management, European Tissue Repair Association and the European Pressure Ulcer Advisory Panel, with a number of co-operating societies, including the Canadian Association of Wound Care.

The venue is the Palace de Congress in Paris, and the sessions will have simultaneous French and English translations. Each day, from Thursday through Tuesday, will feature a number of workshops, symposia and

plenary sessions along with satellite symposia. There are over 10 faculty members confirmed from Canada, and several of our members have submitted posters. Participants will have a chance to network with more than 3,000 colleagues with similar challenges from developed, developing and underdeveloped countries.

There are several ways to take in the meeting. Affordable packages and travel information is available on the CAWC Web site ([www.cawc.net](http://www.cawc.net)). Hotels range from cheap and cheerful to four- or five-star facilities. Paris offers the best *joie de vivre* with wine, food and entertainment, along with culture and ambience. What a wonderful launch to a European adventure and continued learning in wound care. We hope to see you there. ☺

**R. Gary Sibbald,  
BSc, MD, FRCPC  
(Med, Derm),  
MACP, DABD,**

is Chair, International Committee, CAWC; and Chair, Education Committee, WUWHS ([WUWHS.org](http://WUWHS.org))

## Negative Pressure ... continued from page 44

than average proportion of positive outcomes, and the other three had a lower than average proportion of positive outcomes. The authors believe that duration of the wound is only one of many factors that can affect healing.

### Conclusions

This study provides initial data regarding the utility of negative pressure therapy in a variety of

wounds in a community setting. Studies such as these are important because they help better define how various approaches should be applied and in what patient populations.<sup>6</sup> As a result of the study, valuable information was gained. The information will be useful in defining appropriate use of negative pressure therapy and developing program-specific guidelines for the use of it. ☺

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# Articles of Interest

## Literature Review

### Reviewers

**Dr. Shane Inlow**  
reviews an article on  
the lack of a universal  
classification system  
for diabetic foot ulcers.

**Dr. David Keast**  
reviews an article on  
wound measurement.

### Validation of Wagner's Classification: A Literature Review

**Author:** Smith RG

**Publication:** *Ostomy/Wound Management*. 2003;49(1):54-62

**Reviewer:** Shane Inlow, MD

One of the biggest problems in wound care is the lack of a universal classification system to share and compare outcomes with others in the area of diabetic foot ulcers. This is becoming more important with the 'globalization' of wound care. Increasingly, wound classification triggers clinical response as more and more standards of care are being employed.

The Wagner system is the widest classification system currently used, but is showing its 23-year-old age. The author discusses the 'clinimetric' properties of the Wagner system, which are readability, accuracy, reliability and validity. Many modified Wagner systems have cropped up in an attempt to correct such features as technical ambiguity and the presence of infective and vascular components at lower stages, but none have been validated or accepted on a large scale. This article goes into great detail on the pros and cons of the Wagner system, analyzing the clinimetrics very thoroughly.

The author discusses and provides tables for two new classification systems; the S(AD) SAD Classification and the University of Texas (UT), San Antonio Classification. In an attempt to pre-

dict outcomes, the S(AD) SAD details the ulcer by Size (Area / Depth), Sepsis, Arteriopathy and Denervation. Also motivated by the limitations of the Wagner system, Armstrong and Peters developed the UT system, based on clinical and laboratory data, which is able to help determine the risk of amputation of group vs. individual diabetic patients.

This article reviews the current use of classification systems, points out their features and leaves us hoping that one system will become the global 'language' for health-care professionals to communicate their outcomes with one another on an international stage.

### Wound Measurement: Can It Help Us to Monitor Progression to Healing?

**Author:** Flanagan M

**Publication:** *Journal of Wound Care*. 2003;12(5):189-194

**Reviewer:** David H. Keast, MSc, MD, FCFP

To determine whether ulcers are responding to treatment interventions, clinicians must regularly assess the wound for progress toward healing. Too often chart notes simply state: "wound looks better." The most common parameters evaluated include size (length, width and depth), wound edges, wound bed appearance, presence or absence of undermining, exudate and pain. Several tools to quantify ulcer assessment have been devel-

oped. These tools have varying degrees of validity, reliability and responsiveness to change<sup>1</sup>. How should wounds be measured and can these measurements predict clinical outcomes?

Flanagan conducted a systematic review of the literature to answer these questions. Her review reaches four main conclusions.

1. Wound surface areas are often estimated by using diameter product measurements, for example, length x width, assuming the wound to be rectangular. This approach is time-consuming and inaccurate, so does not facilitate clinical decision-making.
2. Planimetry (either mechanical or digital) is more accurate than square counting when determining area from acetate tracings of circumference.
3. Volumetric measurements are not precise and do not inform clinical practice.
4. Percentage reduction in true wound surface area is the best way of predicting healing rates. A 40 per cent reduction in wound surface area over the first two to three weeks of treatment is predictive of healing in 12 to 24 weeks.

### Implications for Practice

Per cent reduction in wound surface area is the best predictor of healing. While acetate tracings with planimetry are the most accurate means of determining area, the ruler method of determining length and width, if consistently applied, is better than no measurements at all. 📏

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**Telehealth and Interdisciplinary...**  
*continued from page 11*

shows the importance of the partnership of physician/nurse in the continuum of patient care. It also helps to meet the goal of accessibility for all people to specialized health-care services. Without telehealth, the patient would have had to travel to benefit from the expertise of an enterostomal nurse.

**Follow-up**

With the fitting of his fistula, Mr. L. was able to nurture relationships with members of his family under significantly more acceptable conditions. The problem with odour was solved, and the fitting was

changed only once a week. The patient greatly appreciated this new independence; he no longer had to wait every day for the CLSC nurse's visit, he only had to empty the collecting bag a few times a day. He also felt much more comfortable. This procedure helped him live the last three months of his life with dignity. All the nurses of the home-care services felt relieved to be able to offer him not only a treatment, but also an effective solution enabling him to get the most from each precious day spent with his loved ones. Mr. L. died last October. ☺

**Ask the Expert**  
*continued from page 37*

petrolatum. Not all zinc oxide pastes are equal. Some contain lanolin and others contain perfumes, both of which are potential contact sensitizers. Some zinc oxide pastes are stiffer than others. To make zinc oxide paste stiffer and less runny, especially in hot water, you can apply talc on a cotton ball and dab it on top of the applied zinc oxide for a stronger barrier. Do not scrub the old zinc oxide off unless it is contaminated; simply fill in the spaces. A tongue depressor is a convenient way to apply the product because it cuts down on the frictional resistance with application.

2. Petrolatum is less stiff than zinc oxide and tends to melt or disappear more easily. It does, however, allow the clinician to visualize the ulcer margin.
3. Use a hydrocolloid or adhesive film dressing as a window frame around the ulcer margin, removing the centre for local ulcer treatment and effectively isolating the ulcer margin from the wound treatment and exudate.
4. Use a film-forming liquid acrylate preparation. This allows ulcer margin visualization and gives longer wear time and greater protection than petrolatum. ☺

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# Canadian Association of Wound Care News

## Education

### Educational Opportunities Now Available

In 2004, the CAWC S-Series is taking Canada by storm. The S-Series is a three-part educational series based on the four Canadian Best Practice Recommendations for Wound Management that have been developed by the CAWC. These Best Practices Recommendations include Wound Bed Preparation, Pressure Ulcers, Venous Ulcers and Diabetic Foot Ulcers.

This series is composed of three linked sessions that together enhance the understanding, skills and effectiveness of the wound-care clinician:

- S1 – Knowledge session (pre-requisite for the S2)
  - S2 – Skills learning session (pre-requisite for S3)
  - S3 – The Reflective Learning and Practice Portfolio
- The 2004 S-Series schedule includes sessions in Toronto, Winnipeg, Halifax and Montreal (in French).

On completion of each S-Series session, the participant will receive a Letter of Completion, and at the end of the complete series (S1, S2, S3) a CAWC Certificate of Completion will be awarded. This S-Series is an introduction, and is complementary, to advanced studies in wound care offered through the University of Toronto, specifically the International Interdisciplinary Wound Care Course.

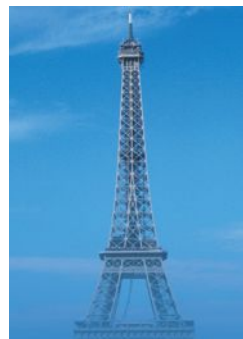
For further information please visit the CAWC Web site at [www.cawc.net](http://www.cawc.net).



Photo: Tourism Calgary

### The CAWC Annual Conference Celebrating 10 Years of Wound Caring! The Wound Care Party of the Decade

The 10th Annual Conference of the CAWC will be held in Calgary, AB, November 11–14, 2004. Please mark your calendars and check the CAWC Web site, [www.cawc.net](http://www.cawc.net), for further information.



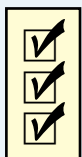
### International Partnerships Paris Meeting, July 2004

The CAWC will be participating in the World Union of Wound Healing Societies meeting in Paris, July 8–13, 2004. Stay up-to-date with information on this event at [www.cawc.net](http://www.cawc.net). Please refer to the article in this issue of *Wound Care Canada* written by Dr. R.G. Sibbald about the World Union of Wound Healing.

## Research

### Innovative Study Results Available Soon

Results of the CAWC-funded study *The Extent of Chronic Wounds in Canada* will be posted on the CAWC Web site as they become available. This study explores the extent of the problem of chronic wounds in Canada.



## Public Policy

### Supporting Evidence-based Wound Care

The Public Policy Committee continues to work hard to provide an evidence-based approach to wound management. The Agree Instrument is being used to rate the evidence base and process of guidelines, protocols and best practices. To learn more about the AGREE Instrument, visit the CAWC Web site.

### CAWC Welcomes New Board Members

The CAWC is pleased to announce that eight new members have been elected for a three-year term to the Board of Directors. Please welcome the following individuals, who bring valuable expertise in wound management:

|   |                                      |
|---|--------------------------------------|
| Dr. Imaan Bayoumi, Kingston, ON         | Dr. Marie Françoise Mégie, Laval, QC |
| Dr. Mario Coté, Levis, QC               |                                      |
| Patricia Coutts, RN, Mississauga, ON    | Dr. R. Miller, Halifax, NS           |
|   | Yvette Moulin, RN, Laval, QC         |
| Louise Forest-Lalande, RN, Montreal, QC | Dr. Gordon Searles, Edmonton, AB     |

### CAWC Board Holds Retreat

CAWC Board members participated in a weekend planning retreat in Toronto in January 2004. The weekend focused on educating Board members about the operations of a not-for-profit board and provided a planning forum for 2004 CAWC initiatives. The retreat was a successful combination of hard work and relationship building.

### CAWC's New Paediatric Board Position

Congratulations to Louise Forest-Lalande who has been recently nominated to the CAWC Board in the position of Paediatric Wound Specialist. Louise invites individuals with a paediatric wound interest to contact her at the following e-mail address: [forest.lalande@sympatico.ca](mailto:forest.lalande@sympatico.ca).



### CAWC French Language Initiative

To better serve the French language wound-care population, the CAWC has created a French Language Committee made up of Marie Françoise Mégie, Mario Coté, Yvette Moulin, Louise Forest-Lalande and Lincoln D'Souza. French language initiatives include the following for 2004:

- 1) Clinical Practice: The CAWC Best Practice Recommendations have been translated into French and are now available at [www.cawc.net](http://www.cawc.net).
- 2) Education: The CAWC Seminar Series will be launched in French on May 28, 2004, in Montreal. French-speaking wound-care opinion leaders will be trained to educate on wound-care practice. The planning will soon commence for a bilingual Annual CAWC Conference to take place in Montreal in 2005.
- 3) Communications: The French language content of *Wound Care Canada* and the CAWC Web site continues to expand.

### Education

#### CAWC Scholarships

The CAWC invites members to apply for one of eight scholarships valued at \$2,500 and developed to assist in educating, informing and promoting best practices to improve patient outcomes within the wound-care community. There is also a new International Scholarship available. The scholarships are awarded in the form of educational and research grants and are presented to recipients at the annual CAWC conference in November. The 2003 scholarship winners are:

- *Dr. Warren L. Rottman Education Scholarship*: Marilyn Rutherford
  - *Cathy Harley Educational Grant in Memory of Aldora Harder and Cathy Foster*: Betty-Ann Prince
  - *Tendra Wound Care Educational Scholarship*: Donna Flahr
  - *Elise Sorensen, RN, Memorial Scholarship*: Kathleen McPhee
  - *R. Gary Sibbald International Scholarship*: José-Contreras Ruiz
- Two of the scholarships were not awarded in 2003 because of a lack of qualified applicants.

Congratulations to all scholarship winners.

### Breaking News

We are pleased to announce the creation of the Heather Orsted Scholarship for Team Development, which will be awarded to two or more disciplines for team education at the IIWCC. Please see the CAWC Web site for details.

### CAWC Membership

#### Check Out the Discounts on CAWC Educational Events – It's Worth it!

There has never been a better time to become a CAWC member and to experience the benefits that being a CAWC member offers. Your decision to join the CAWC should be fueled by the belief that together, as an organized community-based association, we can improve wound care for patients, clinicians, caregivers and related organizations. We need your ongoing support to build your association and realize our objectives.

For more information about joining the CAWC and the many benefits you will receive from doing so, visit the CAWC Web site.



#### Clinical Practice

The Canadian Clinical Practice Survey has been completed by the CAWC Clinical Practice Committee and can be found in this issue of *Wound Care Canada*.

# A Broader Scope

## One Patient's Experience



BY Anny Dupéré

In May 1998, I had 65 cm removed from the latter portion of my ileum due to Crohn's disease. This was accompanied by the insertion of surgical drains that I had not been informed of, and I received no general information about my post-operative wound care. In order to assist you in understanding a patient's perspective, I would like to share my story.

I had been severely ill and mainly bedridden since the beginning of 1997. My symptoms had begun as far back as 1992 and I spent the greater portion of my 20s in the hospital emergency room. I was repeatedly sent home without answers, wondering if I was losing my mind. I had none of the typical red flags of the disease and therefore was overlooked as a Crohn's patient with potential complications.

### Diagnosis: Crohn's

After wasting away from 57 kg to 41 kg and eventually to 35 kg, I was diagnosed with severe Crohn's disease. The damage to my small intestine was immediately visible via a colonoscopy. Ironically, this was my first scope, despite many years of suffering and a vast family history of Crohn's disease. To complicate matters, I had

always suffered from predominant pain on the lower left portion of my abdomen, which up until my surgery had only confused doctors even more. This pain resulted from a life-threatening abscess hidden on my bladder. Despite the pain, and after many scans, there was no indication of the presence of an abscess nor of a fever. The cause was only discovered during my resectional surgery, along with the finding of a loop in my bowel.

### A "rude" awakening

I had been informed of the actual surgical procedure, but feel that I was left in the dark regarding the post-op reality of this type of medical intervention. I awoke to several unexpected tubes, a drain from the site of the surgery, a catheter, the epidural tube, my I.V. and a heavily bandaged wound. I had been only briefly informed of the aftermath, and this wound drain was not included in my expectations. I felt like my body no longer belonged to me and I perceived myself as a slab of scientific matter. Furthermore, my drain was connected to a bottle with its contents quite visible to the curious people passing by. I was not expecting the recovery to involve so much lying down

due to extensive bleeding or for it to render me completely dependent on others.

I was not prepared for the precise care involved with the actual wound incision. Why hadn't they placed the drain/catheter containers in a more discreet place? Why was I not informed of what was involved in my post-operative wound care? Why hadn't they forewarned me of the horrible side effects from medication and the surgery that were to come? Why had they told me that my scar would be barely noticeable — a "bikini" scar, as they had put it?

Despite these complaints I also had certain positive experiences, such as meeting a fantastic gastroenterologist, being treated very humanely by medical staff and learning the most important lesson of all: no matter what, always trust yourself and listen to your body. No one knows your body and your health better than yourself.

If I was to give one piece of humble, non-scientific advice to medical practitioners it would be: continue to trust science, but never forget to trust patients — often they have key insights and a broader scope on the reality of their own health.☺

### Anny Dupéré

lives in Montreal, QC, where she works for MIP Healthcare Textiles as a contract specialist. She has a Master's degree in Spanish.



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