Wound Care ADVISOR

Best *of the* Best 2015

Official journal of National Alliance of Wound Care and Ostomy®

PRACTICAL ISSUES IN WOUND, SKIN, AND OSTOMY MANAGEMENT

September/October 2015 • Volume 4 • Number 5

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1. Ochs RF, Horn SD, et al. Comparison of Air-Fluidized Therapy with Other Support Surfaces Used to Treat Pressure Ulcers in Nursing Home Residents. Ostomy Wound Management, 2005, 51(2):38-68.

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Editorial Mission: ***Wound Care Advisor*** provides multidisciplinary wound care professionals with practical, evidence-based information on the clinical management of wounds. As the official journal of the National Alliance of Wound Care and Ostomy®, we are dedicated to delivering succinct insights and information that our readers can immediately apply in practice and use to advance their professional growth.

Wound Care Advisor is written by skin and wound care experts and presented in a reader-friendly electronic format. Clinical content is peer reviewed.

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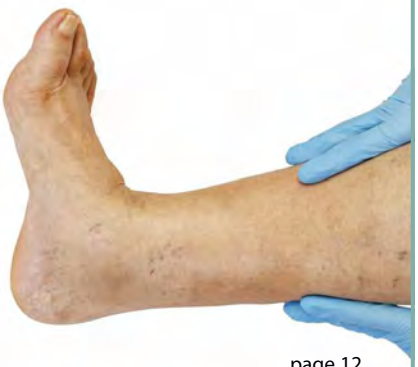

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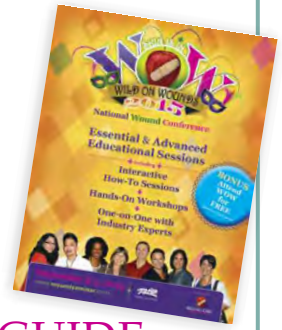

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From the EDITOR

"Best of the Best" three-peat

What do the Los Angeles Lakers, Green Bay Packers, Montreal Canadiens, and New York Yankees have in common? All three have "three-peated", meaning they have won three consecutive championships. This year, we at *Wound Care Advisor*, the official journal of the National Alliance of Wound Care and Ostomy (NAWCO), mark our own three-peat—our third annual "Best of the Best" issue.

This may be the first time you have held *Wound Care Advisor* in your hands because normally we come to you via the Internet. Using a digital format for this peer-reviewed journal allows us to bring you practical information that you can access anytime, anywhere and gives you the ability to access videos and other links to valuable resources for you and your patients. However, it's still nice sometimes to hold a print version of a journal, so once a year, we bring you a compendium of our most popular articles to create a resource you can turn to again and again.

If you're new to *Wound Care Advisor*, this print edition is an opportunity for you to experience what you've been missing. If you're a regular reader, this edition gives you the opportunity to revisit some of our best articles.

Within these pages you'll find feature articles, best practices, step-by-step how-to's, clinical resources, and news. Along with wound-related topics such as palliative wound care, you'll find a variety of other topics, ranging from helping patients overcome ostomy challenges to caring for patients with lower-extremity cellulitis. You'll also hone your skills by reading articles on how to assess wound exudate and use of medical gauze. We haven't forgotten your nonclinical related needs—check out the article on creating effective education programs on a shoestring budget.

Also included as part of this special edition, is an exclusive directory of the *2015 Wild on Wounds Exhibitors Guide*. Wild on Wounds (WOW) is an annual, multidisciplinary national wound conference presented by the Wound Care Education Institute. The exhibitor guide features names, products, and contact information for many different manufacturers and companies that can offer solutions to assist in caring for your patients.

In keeping with our digital format, this compendium will also be available electronically at our website, **www.woundcareadvisor.com**, where you'll be able to download resources and access links to videos, clinical resources, and much more.

Thanks to our readers, *Wound Care Advisor* is a champion. We appreciate your support and look forward to bringing you many more articles designed to help you achieve excellence in your clinical practice. Look for our four-peat in 2016!

Donna Sardina

Donna Sardina, RN, MHA, WCC, CWCMS, DWC, OMS
Editor-in-Chief
Wound Care Advisor

Clears the way for healthy tissue

Collagenase SANTYL® Ointment 250 units/g is the only FDA-approved enzymatic debrider that selectively removes necrotic tissue without harming granulation tissue

Collagenase SANTYL® Ointment is indicated for debriding chronic dermal ulcers and severely burned areas.

Occasional slight transient erythema has been noted in surrounding tissue when applied outside the wound. One case of systemic hypersensitivity has been reported after 1 year of treatment with collagenase and cortisone. Use of Collagenase SANTYL® Ointment should be terminated when debridement is complete and granulation tissue is well established.

Please see complete prescribing information on adjacent page.

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CLINICAL PHARMACOLOGY: Since collagen accounts for 75% of the dry weight of skin tissue, the ability of collagenase to digest collagen in the physiological pH and temperature range makes it particularly effective in the removal of detritus.[1] Collagenase thus contributes towards the formation of granulation tissue and subsequent epithelization of dermal ulcers and severely burned areas. [2, 3, 4, 5, 6] Collagen in healthy tissue or in newly formed granulation tissue is not attacked. [2, 3, 4, 5, 6, 7, 8] There is no information available on collagenase absorption through skin or its concentration in body fluids associated with therapeutic and/or toxic effects, degree of binding to plasma proteins, degree of uptake by a particular organ or in the fetus, and passage across the blood brain barrier.

INDICATIONS AND USAGE: Collagenase SANTYL® Ointment is indicated for debriding chronic dermal ulcers [2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18] and severely burned areas. [3, 4, 5, 7, 16, 19, 20, 21]

CONTRAINDICATIONS: Collagenase SANTYL® Ointment is contraindicated in patients who have shown local or systemic hypersensitivity to collagenase.

PRECAUTIONS: The optimal pH range of collagenase is 6 to 8. Higher or lower pH conditions will decrease the enzyme's activity and appropriate precautions should be taken. The enzymatic activity is also adversely affected by certain detergents, and heavy metal ions such as mercury and silver which are used in some antiseptics. When it is suspected such materials have been used, the site should be carefully cleansed by repeated washings with normal saline before Collagenase SANTYL® Ointment is applied. Soaks containing metal ions or acidic solutions should be avoided because of the metal ion and low pH. Cleansing materials such as Dakin's solution and normal saline are compatible with Collagenase SANTYL® Ointment.

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

A slight transient erythema has been noted occasionally in the surrounding tissue, particularly when Collagenase SANTYL® Ointment was not confined to the wound. Therefore, the ointment should be applied carefully within the area of the wound. Safety and effectiveness in pediatric patients have not been established.

ADVERSE REACTIONS: No allergic sensitivity or toxic reactions have been noted in clinical use when used as directed. However, one case of systemic manifestations of hypersensitivity to collagenase in a patient treated for more than one year with a combination of collagenase and cortisone has been reported.

OVERDOSAGE: No systemic or local reaction attributed to overdose has been observed in clinical investigations and clinical use. If deemed necessary the enzyme may be inactivated by washing the area with povidone iodine.

DOSAGE AND ADMINISTRATION: Collagenase SANTYL® Ointment should be applied once daily (or more frequently if the dressing becomes soiled, as from incontinence). When clinically indicated, crosshatching thick eschar with a #10 blade allows Collagenase SANTYL® Ointment more surface contact with necrotic debris. It is also desirable to remove, with forceps and scissors, as much loosened detritus as can be done readily. Use Collagenase SANTYL® Ointment in the following manner:

1 – Prior to application the wound should be cleansed of debris and digested material by gently rubbing with a gauze pad saturated with normal saline solution, or with the desired cleansing agent compatible with Collagenase SANTYL® Ointment (See **PRECAUTIONS**), followed by a normal saline solution rinse.

2 – Whenever infection is present, it is desirable to use an appropriate topical antibiotic powder. The antibiotic should be applied to the wound prior to the application of Collagenase SANTYL® Ointment. Should the infection not respond, therapy with Collagenase SANTYL® Ointment should be discontinued until remission of the infection.

3 – Collagenase SANTYL® Ointment may be applied directly to the wound or to a sterile gauze pad which is then applied to the wound and properly secured.

4 – Use of Collagenase SANTYL® Ointment should be terminated when debridement of necrotic tissue is complete and granulation tissue is well established.

HOW SUPPLIED: Collagenase SANTYL® Ointment contains 250 units of collagenase enzyme per gram of white petrolatum USP.

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Collagenase SANTYL® Ointment is available in 15 gram, 30 gram, and 90 gram tubes.

REFERENCES: 1. Mandl, I., Adv Enzymol. 23:163, 1961. **2.** Boxer, A.M., Gottesman, N., Bernstein, H., & Mandl, I., Geriatrics. 24:75, 1969. **3.** Mazurek, I., Med. Welt. 22:150, 1971. **4.** Zimmermann, WE., in "Collagenase," Mandl, I., ed., Gordon & Breach, Science Publishers, New York, 1971, p. 131, p. 185. **5.** Vetra, H., & Whittaker, D., Geriatrics. 30:53, 1975. **6.** Rao, D.B., Sane, P.G., & Georgiev, E.L., J. Am. Geriatrics Soc. 23:22, 1975. **7.** Vrabec, R., Moserova, J., Konickova, Z., Behounkova, E., & Blaha, J., J. Hyg. Epidemiol. Microbiol. Immunol. 18:496, 1974. **8.** Lippmann, H.I., Arch. Phys. Med. Rehabil. 54:588, 1973. **9.** German, F. M., in "Collagenase," Mandl, I., ed., Gordon & Breach, Science Publishers, New York, 1971, p. 165. **10.** Haimovici, H. & Strauch, B., in "Collagenase," Mandl, I., ed., Gordon & Breach, Science Publishers, New York, 1971, p. 177. **11.** Lee, L.K., & Ambrus, J. L., Geriatrics. 30:91, 1975. **12.** Locke, R.K., & Heifitz, N.M., J. Am. Pod. Assoc. 65:242, 1975. **13.** Varma, A.O., Bugatch, E., & German, F.M., Surg. Gynecol. Obstet. 136:281, 1973. **14.** Barrett, D., Jr., & Klibanski, A., Am. J. Nurs. 73:849, 1973. **15.** Bardfeld, L.A., J. Pod. Ed. 1:41, 1970. **16.** Blum, G., Schweiz, Rundschau Med Praxis. 62:820, 1973. Abstr. in Dermatology Digest, Feb. 1974, p. 36. **17.** Zaruba, F., Lettl, A., Brozkova, L., Skrdlantova, H., & Krs, V., J. Hyg. Epidemiol. Microbiol. Immunol. 18:499, 1974. **18.** Altman, M.I., Goldstein, L., & Horwitz, S., J. Am. Pod. Assoc. 68:11, 1978. **19.** Rehn, V.J., Med. Klin. 58:799, 1963. **20.** Krauss, H., Koslowski, L., & Zimmermann, W.E., Langenbecks Arch. Klin. Chir. 303:23, 1963. **21.** Gruenagel, H.H., Med. Klin. 58:442, 1963.

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Mild compression diabetic socks safe and effective for lower extremity edema

Diabetic socks with mild compression can reduce lower extremity edema in patients with diabetes without adversely affecting arterial circulation, according to a randomized control trial presented at the American Diabetes Association 75th Scientific Sessions Conference.

"**Control of lower extremity edema in patients with diabetes: Double-blind RCT assessing the efficacy of mild compression diabetic socks**[A]" reports that the skin perfusion pressure of the medial calf increased in those using the socks, which the researchers say indicates that microvascular circulation in the region may have improved with mild compression.

A total of 80 patients were randomized into two treatment arms, and patients were followed weekly for 4 weeks. The study's authors conclude that mild compression diabetic socks "may be effectively and safely used" in patients with diabetes and lower extremity edema.

Telemedicine may have limited value for monitoring diabetic foot ulcers

"**A randomized controlled trial comparing telemedical and standard outpatient monitoring of diabetic foot ulcers**[B]" reports no difference in the incidence of amputation between the two groups, but notes that telemedical monitored patients had higher mortality.

A total of 401 patients participated in the study, with similar demographics for the two groups. The study end points were complete ulcer healing, amputation, or death.

The authors of the study in *Diabetes Care* write the higher mortality "throws into question the role of telemedicine in monitoring diabetic foot ulcers" and call for more research.

Vitamin D may help in treating Crohn's disease

A small study of 27 patients published in the *United European Gastroenterology Journal* found that those randomized to take 2,000 U of vitamin D daily had significantly higher concentrations of serum 25-hydroxy-vitamin D and maintenance of intestinal permeability at 3 months, compared to those who took placebo.

Patients with serum 25-hydroxyvitamin D equal to or higher than 75 nmol/L had significantly lower C-reactive protein and higher quality of life, as well as non-significantly lower Crohn's Disease Activity Index than those with a serum 25-hydroxyvitamin D less than 75 nmol/L.

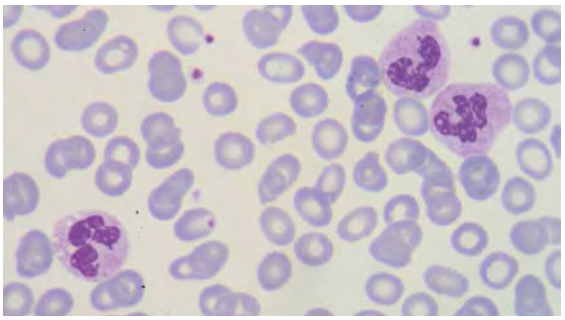
"**Effects of vitamin D supplementation on intestinal permeability, cathelicidin and disease markers in Crohn's disease: Results from a randomised double-blind placebo-controlled study**[C]" also reports that those who didn't receive vitamin D had higher intestinal permeability.

Update on honey dressing reimbursement

The January 22 policy article, from the Durable Medical Equipment (DME) Medicare Administrative Contractor (MAC), which introduced a **new coverage standard**[D] and was the basis of the MEDIHONEY® products' coding change from covered to noncovered codes, has been rescinded. An amended policy article, adopted by all four DME MACs and effective October 1, 2015, specifically confirms that coverage of multicomponent dressings that contain medicinal honey will be based on the underlying covered components.

Neutrophil response may impair wound healing in patients with diabetes

"**Diabetes primes neutrophils to undergo NETosis, which impairs wound healing**[E]," published in *Nature Medicine*, reports that in mice, disrupting the ability for neutrophils to form neutrophil extracelluar traps (NETs), which trap and kill bacteria, improves wound healing.



Researchers disrupted the formation of NETs by eliminating or controlling expression of the PAD4 enzyme, but they note that **pharmacologic intervention**[F] of PAD4 activity needs to be tested to see if it achieves the same benefits.

Education and one-step incontinence product helps reduce pressure ulcers

Educating clinicians and implementing incontinence care procedures with a 1-step product helps significantly reduce hospital-acquired pressure ulcers, according to "**A prospective, descriptive, quality improvement study to decrease incontinence-associated dermatitis and hospital-acquired pressure ulcers**[G]."

The study, published in *Ostomy Wound Management* and conducted in two acute-care neurology units, added that the rate

of incontinence-associated dermatitis stayed the same.

Options for treatment after radical hysterectomy studied

Certain patients with cervical cancer can benefit from adjuvant chemotherapy after radical hysterectomy with fewer long-term complications, such as lymphedema, and a therapeutic effect that is not significantly different from adjuvant radiotherapy or concurrent chemoradiation therapy, according to a study in *PLOS One*.

The 267 patients studied in "**Clinical role of adjuvant chemotherapy after radical hysterectomy for FIGO Stage IB-IIA Cervical Cancer: Comparison with adjuvant RT/CCRT using inverse-probability-of-treatment weighting**[H]" were followed for a median of 46.8 months. ■

Online Resources

A. http://www.abstractsonline.com/pp8/#!/3699/presentation/8736

B. http://care.diabetesjournals.org/content/early/2015/06/25/dc15-0332.abstract

C. http://ueg.sagepub.com/content/early/2015/02/06/2050640615572176.full.pdf+html

D. https://www.dmepdac.com/resources/articles/2015/01_27_15.html

E. http://www.nature.com/nm/journal/v21/n7/full/nm.3887.html

F. http://news.psu.edu/story/360684/2015/06/15/research/disabling-infection-fighting-immune-response-speeds-wound-healing

G. http://www.o-wm.com/article/prospective-descriptive-quality-improvement-study-decrease-incontinence-associated

H. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0132298

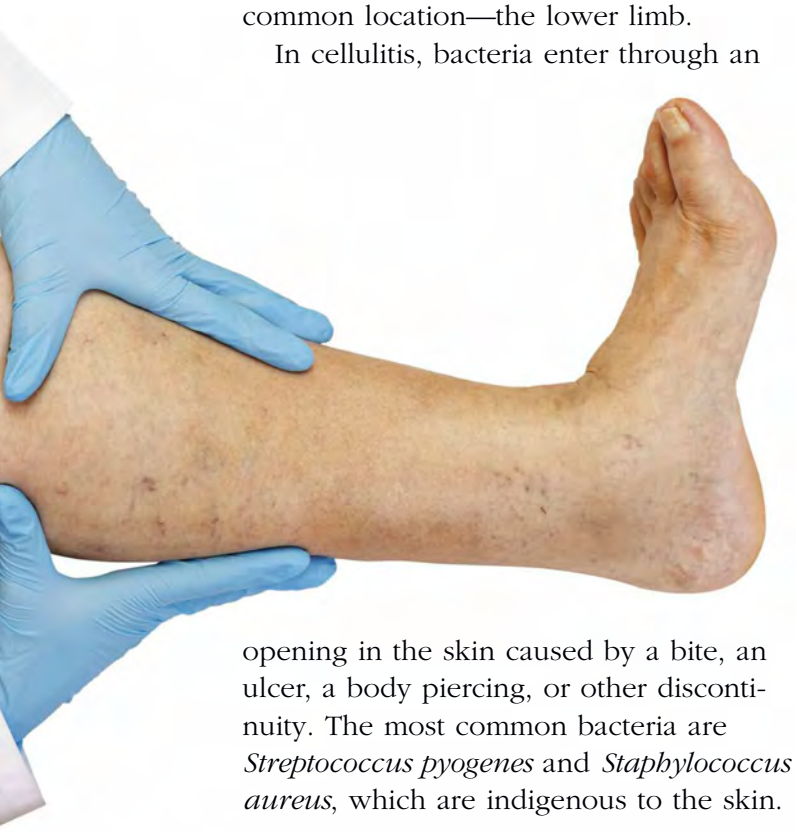
Providing evidence-based care for patients with lower-extremity cellulitis

Find out how to identify and intervene for this potentially dangerous bacterial skin infection.

By Darlene Hanson, PhD, RN; Diane Langemo, PhD, RN, FAAN; Patricia Thompson, MS, RN; Julie Anderson, PhD, RN; and Keith Swanson, MD

Cellulitis is an acute, painful, and potentially serious spreading bacterial skin infection that affects mainly the subcutaneous and dermal layers. Usually of an acute onset, it's marked by redness, warmth, swelling, and tenderness. Borders of the affected skin are characteristically irregular. Although cellulitis may occur in many body areas, this article discusses the most common location—the lower limb.

In cellulitis, bacteria enter through an opening in the skin caused by a bite, an ulcer, a body piercing, or other discontinuity. The most common bacteria are *Streptococcus pyogenes* and *Staphylococcus aureus*, which are indigenous to the skin. The body reacts to these microbes as foreign, leading to presenting signs and symptoms. On assessment, clinicians may notice a recent insect bite, surgical incision, or trauma to the leg.



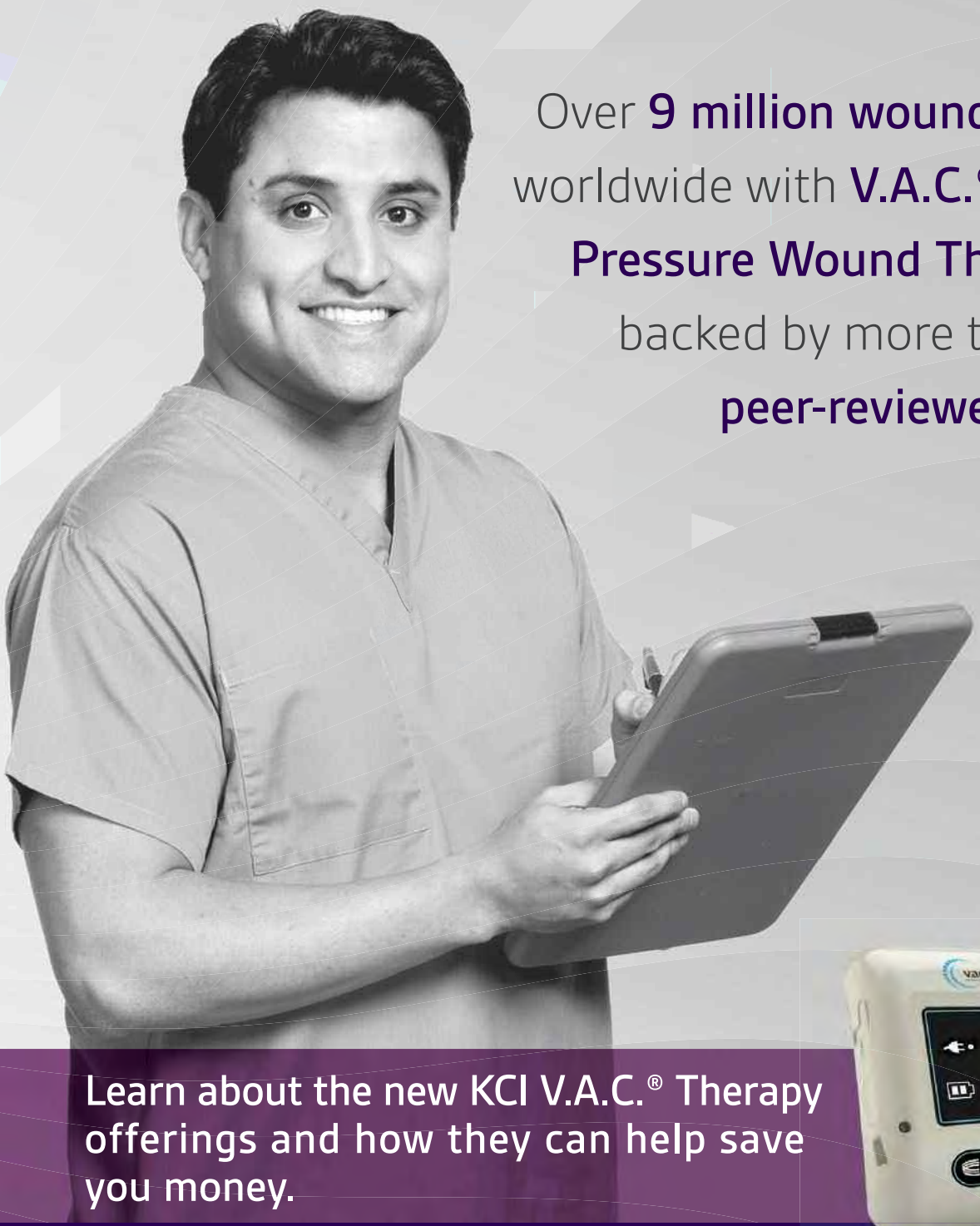
Cellulitis and cutaneous abscesses combined cause nearly 600,000 hospital admissions annually in the United States—an increase of 65% since 1999. Cellulitis and other soft-tissue infections account for up to 10% of hospital admissions. Incidence of cellulitis ranges from 0.2 in 1,000 person-years to 24.6 in 1,000 person-years in different populations.

In 2006, about 14.5 million cases of cellulitis occurred, incurring costs of approximately $3.7 billion overall. Costs may rise when the condition is misdiagnosed or when antibiotics are used inappropriately, as this may prolong treatment or predispose patients to complications.

What the literature shows

In 2012, Lipsky and colleagues completed a prospective multicenter study of patients with soft-tissue infections to explore the epidemiology, clinical presentation, treatment, and clinical outcomes. Of the 1,033 subjects, 26.9% had cellulitis and the same percentage had diabetic foot infections. In contrast, surgical-site infections affected 16.7% and deep soft-tissue

Not all wound therapy is the same



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abscesses affected 13.6%. The lower leg was the most common cellulitis site (49.6%). Pain was rated as moderate to severe in 73% (n = 203) of patients. Overall, patients with cellulitis had more severe erythema and local warmth than those with other soft-tissue infections. However, abscess, induration, tenderness, and pain were more common and more severe in patients with deep soft-tissue abscess. Leg warmth was absent in only 10 of the 278 cellulitis patients.

Comorbidities most often accompanying cellulitis included diabetes, peripheral vascular disease, chronic lung disease, and renal insufficiency. Treatment included initial I.V. vancomycin in 60% of patients, followed by penicillins, beta-lactamase inhibitors, and cephalosporins. For patients hospitalized with cellulitis, the mean stay was 7.1 days (range, 5.8 to 8.1 days).

Cellulitis is common in patients with circulatory problems of the legs.

A 2010 study by Kilburn and colleagues found 25 randomized controlled trials related to cellulitis. The review noted that macrolides reportedly were more effective than penicillins in treating cellulitis and oral antibiotics were more effective than I.V. antibiotics. But due to lack of research-supported findings, reviewers couldn't give specific recommendations for cellulitis treatment; further study is needed to determine the best treatment.

A retrospective epidemiologic and outcomes study by Zervos and colleagues (in 2012) assessed the origin of complicated and soft-tissue infections and the appropriateness of initial antibiotic therapy in hospital patients. In the sample of 1,096 patients, the most common soft-tissue infections were cellulitis and abscess, usually community acquired. *S. aureus* was the most common culture-positive skin infection; 74% of these infections were methicillin-resistant. More work needs to be done to examine the impact of skin infections and use of appropriate initial therapy for such infections.

Risk factors

Cellulitis is common in patients with circulatory problems of the legs, particularly those with venous disease. Anyone who sustains leg trauma, an insect bite, or a surgical wound is at risk. People who are overweight or have leg ulcers or lymphedema are at higher risk. Lymphedema especially increases cellulitis risk because the lymphatic pathways transport immune cells to fight infection; if these pathways are blocked, cellulitis can readily occur.

Cellulitis isn't contagious because it's an infection of the dermis and subcutaneous tissues, which act as a protective layer over the infected tissues. Rarely, it can lead to a deeper, more serious skin infection, such as necrotizing fasciitis.

Diagnosis, staging, and classification

Clinical Resource Efficiency Support Team (CREST) guidelines aid diagnosis. Cellulitis ranges from class I to class IV, with IV being the most severe.

- Class I: Patients lack systemic signs or symptoms.
- Class II: Patients have comorbid conditions that affect recovery.
- Class III: Patients have accompanying limb-threatening conditions or confusion, tachycardia, or other unstable conditions.
- Class IV: Patients have severe, life-threatening infections or septicemia. (See *Classifying cellulitis.*)

Differentiating cellulitis from similar conditions

Cellulitis is diagnosed definitively based on classic symptoms, which include a unilateral hot, erythematous, nonblanching redness that persists with limb elevation. Skin may be dry and flaking. Commonly, subcutaneous tissue is tender; in severe cellulitis, crepitations may occur.

Differentiating cellulitis from other conditions may prove challenging. One study with a sample of 635 patients who'd been diagnosed with cellulitis found only 425 (67%) actually had the condition. Disorders that can mimic cellulitis include eczema, tinea pedis, and other chronic conditions such as erysipelas. Lipodermatosclerosis also may be mistaken for cellulitis.

Unlike cellulitis, venous eczema can cause a range of manifestations, such as bilateral symptoms, itching, hemosiderin deposits, and edema. Suspect venous eczema, not cellulitis, in a patient with reddened leg skin, chronic venous disease or an ulcer, and a history of appropriate antibiotics with no improvement.

Dependent rubor from peripheral vascular disease also may resemble cellulitis. But in this condition, further assessment reveals short-distance claudication or "rest" pain, lack of hair growth on the lower limb, and redness that completely disappears on elevation.

Assessing for induration

If you suspect cellulitis, assess for induration—a hardened mass or formation with defined edges, with slight swelling and firmness at the edges or border between normal skin and skin affected by cellulitis. The Bates-Jensen Wound Assessment Tool recommends assessing induration by gently attempting to pinch the affected area; with induration, you won't be able to pinch the tissue. Use a measuring tool to document how far induration extends. Wound care clinicians typically outline the indurated area from visit to visit to

Classifying cellulitis

This chart describes characteristics of the four classes of cellulitis.

CLASSIFICATION	CHARACTERISTICS
Class I	• No signs or symptoms of systemic toxicity • No uncontrolled comorbidities
Class II	• Systemic illness *or* • Systemic wellness with comorbid conditions—for instance, peripheral vascular disease, chronic venous insufficiency, or morbid obesity, which may impede resolution of infection
Class III	• Significant systemic signs and symptoms, such as acute confusion, tachycardia, tachypnea, or hypotension • Unstable comorbidities that may interfere with response to therapy • Limb-threatening infection caused by vascular compromise
Class IV	• Sepsis syndrome. • Severe life-threatening infection, such as necrotizing fasciitis

Based on Clinical Research Efficiency Support Team (CREST). Guidelines on the Management of Cellulitis in Adults. June 2005. www.acutemed.co.uk/docs/Cellulitis%20guidelines,%20CREST,%2005.pdf

Cellulitis treatment

Treatment of cellulitis depends on its classification.

- **Class I:** oral antibiotics in an outpatient setting
- **Class II:** oral or I.V. antibiotics in an outpatient setting
- **Class III:** hospitalization for I.V. antibiotic therapy
- **Class IV:** urgent hospitalization for intensive multiple therapy and specialist consult

HAMMMER interventions

To help you remember interventions for patients with cellulitis, think HAMMMER.

H for *Hydrate*: Urge patients to drink plenty of fluids—about 68 oz per day if possible.
A for *Analgesia*: Provide pain relief on a regular basis.
M for *Monitor pyrexia*: Is the patient's temperature still rising?
M for *Mark off the area*: Is the redness spreading?
M for *Measure limb circumference*: Is leg size increasing?
E for *Elevate the limb*: Reduce swelling, if possible.
R for *Record assessment findings*: Ensure accurate documentation.

Based on Beasley A. Management of patients with cellulitis of the lower limb. *Nurs Stand.* 2011;(26)11:50-5.

determine if induration has increased or decreased.

Treatment

Guidelines for cellulitis treatment hinge on severity. A triple approach using I.V. antibiotics, I.V. fluids, and pain management is recommended. Light compression is suggested if the ankle-brachial index (ABI) is adequate, but use caution during an acute cellulitis episode. Consider limb elevation and analgesics for comfort.

Treatment should be prompt to help prevent complications. Using the HAMMMER acronym can help you remember the essential elements of treatment. (See *Cellulitis treatment* and *HAMMMER interventions*.)

Recurrent cellulitis can damage the lymphatic drainage system of the affected limb, causing lymphangitis, chronic lymphedema, or both.

Antibiotics

Clinicians typically prescribe a 14-day course of antibiotics (unless contraindicated) if they're unsure whether inflammation stems from infection. Advise patients to contact their primary care practitioner if they don't notice a response to therapy within 3 days. Antibiotics are effective in about 90% of cases. If the affected area is quite small and cellulitis isn't severe, it may clear without antibiotics; if exudate is more than minimal, the patient usually needs antibiotics.

Empirical treatment with semisynthetic penicillin, first-or second-generation cephalosporins, macrolides, or clindamycin is advised, primarily because of the increasing incidence of methicillin-resistant *S. aureus* (MRSA) or erythromycin-resistant *S. pyogenes*. When cellulitis surrounds an abscess formation with MRSA, about half of the infections resist clindamycin. Of the *S. pyogenes* cases resistant to macrolides, about 99.5% are susceptible to clindamycin and 100% to penicillin. If the condition doesn't improve, symptoms are extensive, or the patient has a high temperature, hospitalization and I.V. antibiotics may be warranted.

I.V. fluids and hydration

As with any systemic infection, I.V. fluids are indicated, as the infection can significantly increase insensible water loss, in turn causing dehydration and possibly multisystemic failure.

Compression

In the past, studies recommended against using compression, assuming it could spread bacteremia. Current best practice includes light compression therapy used cautiously. (Acute infections that lead to swelling can cause higher tissue pressures than normal and compression could fur-

Cellulitis: A case study

Henry Castillo*, a 68-year-old migrant farm worker, comes to your clinic for diabetes management. On examination, you find a weeping open leg wound with lower-leg redness and swelling. You note early signs and symptoms of chronic obstructive pulmonary disease, including shortness of breath on exertion and bilateral inspiratory wheezes.

Mr. Castillo's history includes type 2 diabetes with peripheral neuropathy and hypertension. He reports he smokes one pack of cigarettes daily and drinks two or three beers a day.

Initial laboratory tests show a glycosylated hemoglobin (HbA1c) level of 9.7, white blood cell count of 13,000, hemoglobin level of 11.7 g/dL, low-density lipoprotein level of 187 mg/dL, high-density lipoprotein level of 50 mg/dL, and total cholesterol level of 252 mg/dL.

Further assessment is warranted. You observe induration and dry, flaky skin on his lower leg, but no obvious signs of peripheral arterial disease. You stage his cellulitis as class II and document absence of peripheral arterial disease. Oral antibiotics and increased fluids are ordered. Although Mr. Castillo is treated at home, he will require hospitalization if his inflammation spreads while on oral antibiotics, if he has a suspected systemic infection, or if he shows objective signs and symptoms of infection, including an elevated temperature or a red streak spreading up toward the trunk.

Mr. Castillo is prescribed oral antibiotics with analgesics and moisturizing lotions to increase his comfort. He is referred to the wound care center for ankle-brachial index measurement, which reveals adequate circulation. The clinician marks the affected leg area to help determine if induration is increasing or decreasing, cleans the wound with normal saline solution, and carefully applies an antimicrobial absorbent dressing.

The clinician correctly applies compression wraps, and teaches Mr. Castillo how to protect the compression wraps and what to do if they seem too tight. She instructs family members to make sure he keeps his leg elevated properly to relieve the accompanying edema. She also advises him when to return to the clinic and teaches him how to do ankle exercises to increase blood flow. She instructs family members how to support the limb carefully when moving and turning him.

To ensure comprehensive care, the clinician refers Mr. Castillo to a nutritionist for dietary management of his low hemoglobin value and high cholesterol and HbA1c levels. The treatment plan includes physical therapy, wound care, compression therapy, foot exercises, and routine monitoring after his clinic visit.

When Mr. Castillo returns to the clinic, the clinician notes improvement. Induration and redness have decreased, no signs or symptoms of fever are present, and his wound has healed. She fits him for compression stockings to decrease the risk of cellulitis recurrence. For this patient, comprehensive, holistic management resulted in a positive outcome.

*Fictitious name

ther compromise the limb.) Teach the patient how to apply and care for the compression hose. Before considering compression in any form, perform a vascular assessment, including ABI measurement. (See *Cellulitis: A case study.*)

Pain management and skin comfort

Assess the patient's pain level and provide pain management as needed. Nonsteroidal anti-inflammatory drugs hasten healing when combined with antibiot-ics. Moisturizing the limb can reduce skin dryness and flaking and ease discomfort.

Limb elevation

Elevating the affected leg above heart level is a key intervention for cellulitis. Raise the ankle higher than the knee, the knee higher than the hip, and the entire leg higher than heart level. Continue elevation for the first 24 to 48 hours while I.V. antibiotics are infusing.

Monitoring for complications

Measure the patient's temperature on an ongoing basis. Expect to obtain blood cultures as a standard of care. For complex patients with peripheral arterial disease,

assess for complications, such as gangrene and poorly healing wounds.

If cellulitis doesn't respond to ordinary treatment, suspect complications, such as septicemia. This condition arises when bacteria spread to the lymph system and bloodstream. Rarely, the infection may spread to deeper fascial tissues (resulting in necrotizing fasciitis) or to the bone (causing osteomyelitis). Signs and symptoms of systemic infection include chills, sweating, fatigue, general malaise, muscle ache, and a sensation of heat. These require prompt attention.

Recurrent cellulitis can damage the lymphatic drainage system of the affected limb, causing lymphangitis, chronic lymphedema, or both. Also, abscesses may form if the infection becomes highly localized in a small area.

Innovations in therapy

In England, a nurse-led "Red Legs" service has been established to help meet the needs of patients with conditions that can be misconstrued as cellulitis. A team of healthcare professionals established integrated care pathways for cellulitis diagnosis and treatment. Results were promising and included a significant cost savings. Another group of British researchers reported on the effectiveness of training caregivers about cellulitis using simulation methods. In a 2011 simulation study by Unsworth and colleagues, nurses who participated in patient simulation scenarios had a 45% increase in confidence levels regarding diagnosing and managing cellulitis and recognizing patient deterioration. Further research is needed so healthcare professionals can provide cost-effective, evidence-based treatment for the many individuals affected by cellulitis. ■

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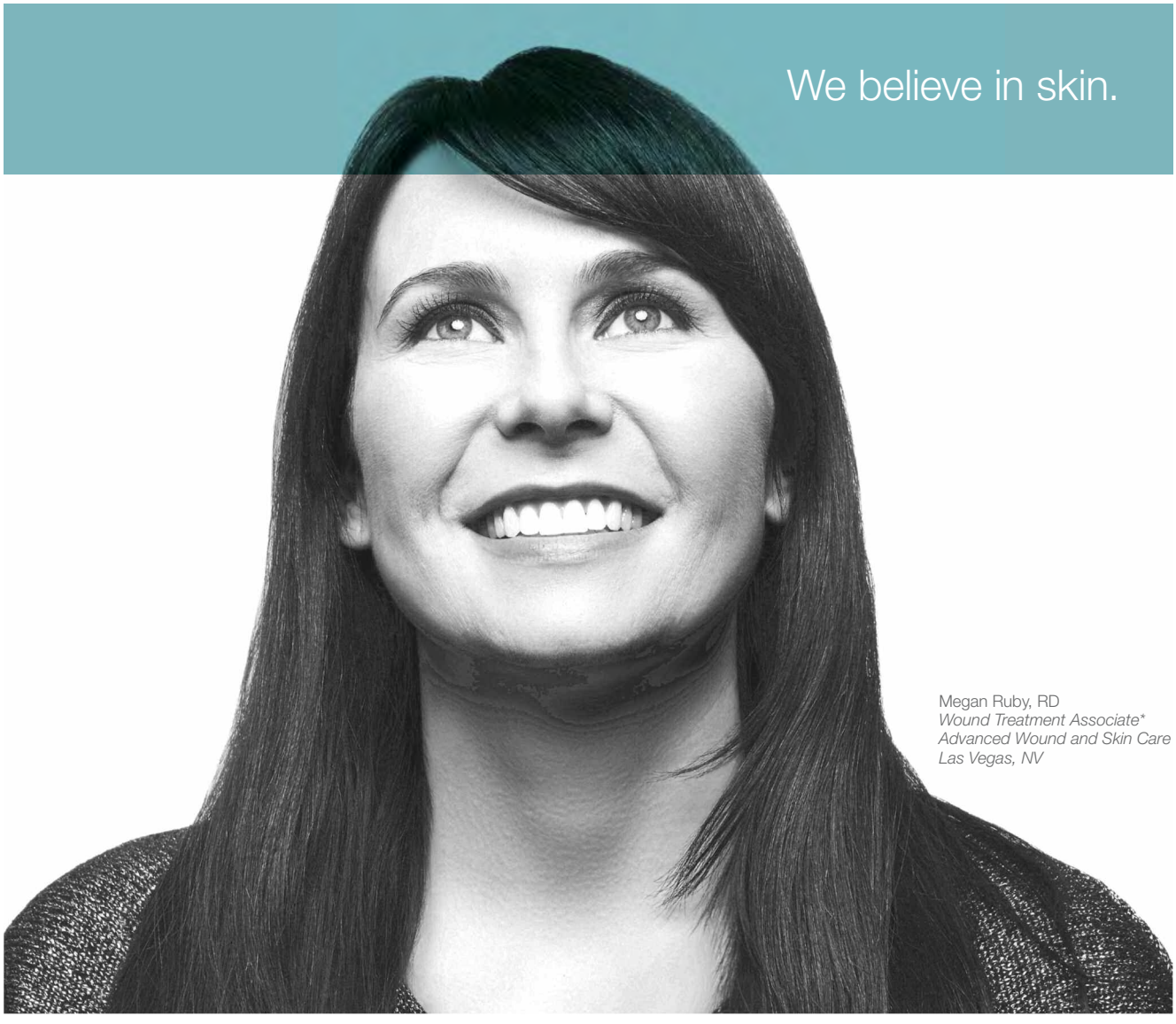

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How to assess wound exudate

By Nancy Morgan, RN, BSN, MBA, WOC, WCC, DWC, OMS

Each issue, *Apple Bites* brings you a tool you can apply in your daily practice.

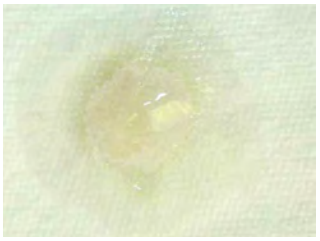
Exudate (drainage), a liquid produced by the body in response to tissue damage, is present in wounds as they heal. It consists of fluid that has leaked out of blood vessels and closely resembles blood plasma. Exudate can result also from conditions that cause edema, such as inflammation, immobility, limb dependence, and venous and lymphatic insufficiency.

Accurate assessment of exudate is important.

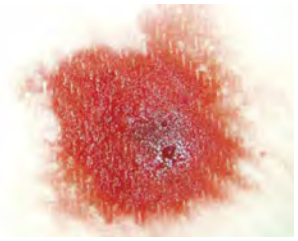
Accurate assessment of exudate is important throughout the healing process because the color, consistency, odor, and amount change as a result of various physiologic processes and underlying complications.

Consistent terminology is crucial to ensure accurate communication among clinicians. Here are terms you should keep in mind when observing the wound and documenting your findings.

Type



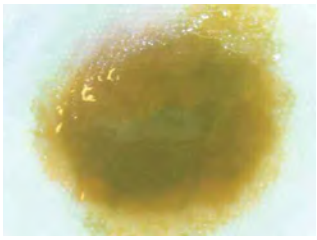
- Serous—thin, clear, watery plasma, seen in partial-thickness wounds and venous ulceration. A moderate to heavy amount may indicate heavy bio-burden or chronicity from a subclinical infection. Serous exudate in the acute inflammatory stage is normal.



- Sanguineous—bloody drainage (fresh bleeding) seen in deep partial-thickness and full-thickness wounds during angiogenesis. A small amount is normal in the acute inflammatory stage.

- Serosanguineous—thin, watery, pale red to pink plasma with red blood cells. Small amounts may be seen in the acute inflammatory or acute proliferative healing phases.
- Purulent—thick, opaque drainage that is tan, yellow, green, or brown. Puru-

lent exudate is never normal and is often associated with infection or high bacteria levels.



Amount

- None—Wound tissues are dry.
- Scant—Wound tissues are moist, but there is no measurable drainage.
- Small/minimal—Wound tissues are very moist or wet; the drainage covers less than 25% of the dressing.
- Moderate—Wound tissues are wet; the drainage involves more than 25% to 75% of the dressing.
- Large or copious—Wound tissues are filled with fluid that involves more than 75% of the dressing.

Consistency

- Low viscosity—thin, runny
- High viscosity—thick or sticky; doesn't flow easily

Odor

- No odor noted
- Strong, foul, pungent, fecal, musty, or sweet

Use the following terms to describe the condition of primary and secondary wound dressings:

- Dry—The primary dressing is unmarked by exudate; the dressing may adhere to the wound.
- Moist—Small amounts of exudate are visible when the dressing is removed; the primary dressing may be lightly marked.
- Saturated—The primary dressing is wet and strikethrough occurs.

Use the terms dry, moist, saturated, and leaking to describe the condition of primary and secondary wound dressings.

- Leaking—The dressings are saturated, and exudate is leaking from primary and secondary dressings onto the patient's clothes.

A useful resource to help you with your assessment is the **Bates-Jensen Wound Assessment Tool**[A]. ■

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Nancy Morgan, cofounder of the Wound Care Education Institute, combines her expertise as a Certified Wound Care Nurse with an extensive background in wound care education and program development as a nurse entrepreneur.

Online Resource

A. http://www.geronet.med.ucla.edu/centers/borun/modules/Pressure_ulcer_prevention/puBWAT.pdf

B. http://www.wcei.net/

Medical gauze 101

By Nancy Morgan, RN, BSN, MBA, WOC, WCC, DWC, OMS

Each issue, *Apple Bites* brings you a tool you can apply in your daily practice.

Medical gauze, a bleached white cloth or fabric used in bandages, dressings, and surgical sponges, is the most widely used wound care dressing. Commonly known as "4×4s," gauze is made from fibers of cotton, rayon, polyester, or a combination of these fibers. Surgical gauze must meet standards of purity, thread count, construction, and sterility according to the **United States Pharmacopeia**[A].

Gauze offers a variety of options—woven or nonwoven, sterile or nonsterile, plain or impregnated, and fenestrated (perforated or with slits)—and is available in various sizes, shapes, and thicknesses.

Woven or nonwoven gauze

Matching the correct type of gauze dressing to the wound is essential to successful wound healing.

Woven gauze. Woven gauze has a loose, open weave, which allows fluids from the wound to be absorbed into the fibers, wicked away, or passed through into other absorbent materials in the wound's dressing. Most woven products are a fine or coarse cotton mesh, depending on the thread count per inch. Fine-mesh cotton gauze is often used for packing, such as in a normal saline wet-to-moist dressing, whereas coarse-mesh cotton gauze, such as a normal saline wet-to-dry dressing, is used for nonselective debriding. Woven gauze shouldn't be cut and placed in a wound because loose fibers (lint) may get lost in the wound and delay healing.

By Saltanat ebli, licensed under CC0 via Wikimedia Commons.

Nonwoven gauze. Nonwoven gauze consists of fibers pressed together to resemble a weave, which provides improved wicking and greater absorbent capacity. Compared to woven gauze, this type of gauze produces less lint and has the benefit of leaving fewer fibers behind in a wound when removed. Most nonwoven gauze dressings are made of polyester, rayon, or blends of these fibers and are stronger, bulkier, and softer than woven pads.

Types of gauze dressings

- Impregnated dressings—These gauze dressings are coated or saturated with

pharmaceutical materials, such as petroleum jelly, oil or water emulsion, hydrogel, iodine, or antimicrobials.

- Wrapping gauzes—Used for securement, padding, and protection, these dressings may include cotton, elastic, or a nylon and rubber mix, and have a fluff dried with crinkle-weave pattern.
- Sponges—A sponge, often referred to as a gauze pad, is a piece of gauze folded into a square. Common sizes are 2×2 and 4×4.

Appropriate use of gauze

Gauze can be used for cleansing, packing, scrubbing, covering, and securing in a variety of wounds.

Closely woven gauze is best for extra strength or greater protection, while open or loose weave is better for absorbency or drainage.

When it comes to packing for a wound, use a single gauze strip or roll to fill deep ulcers as opposed to multiple single gauze dressings (2×2s or 4×4s) because retained gauze in the ulcer bed can serve as a source of infection.

For many years, woven gauze was used in the wet-to-dry wound treatment. This treatment consisted of applying moistened saline gauze to the wound bed and, when the gauze was dry and embedded into the wound tissue, ripping it out to debride necrotic tissue from the wound. Many **studies**[B] and **clinical practice guidelines**[C] now discourage—and even condemn—the use of wet-to-dry gauze for treatment of wounds. When other forms of moisture-retentive dressings aren't available, continually moist gauze (wet to moist) is preferable to the wet-to-dry treatment.

Click here[D] to access examples of brands and types of gauze dressings. ■

Matching the correct type of gauze dressing to the wound is essential to successful wound healing.

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Nancy Morgan, cofounder of the Wound Care Education Institute, combines her expertise as a Certified Wound Care Nurse with an extensive background in wound care education and program development as a nurse entrepreneur.

Online Resources

A. http://www.pharmacopeia.cn/v29240/usp29nf24s0_m34710.html

B. http://deconsolidatenow.org/Documents/10_Ovington_Article.pdf

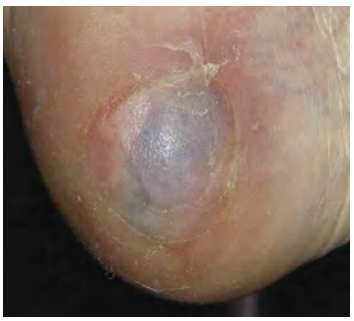
C. http://www.npuap.org/wp-content/uploads/2014/08/Updated-10-16-14-Quick-Reference-Guide-DIGITAL-NPUAP-EPUAP-PPPIA-16Oct2014.pdf

D. http://www.woundsource.com/product-category/dressings/gauzes-non-wovens

E. http://www.wcei.net/

Evolution of a deep tissue injury or a declining pressure ulcer?

By Jeri Lundgren, BSN, RN, PHN, CWS, CWCN



Deep tissue injury

A declining pressure ulcer decreases the quality of life for patients and places providers at risk for regulatory citations and litigation. But it's important for clinicians to determine whether the first appearance of skin injury is truly a stage I or II pressure ulcer or if it's a deep tissue injury (DTI), a unique staging category for a pressure ulcer. Otherwise, a clinician might think a pressure ulcer is getting worse instead of the change being the normal progression of a pressure ulcer that is presenting as a DTI.

DTI and pressure ulcer comparisons

An increasing body of evidence demonstrates that the epidermis and dermis are more resilient to the effects of pressure than muscle tissue, so many pressure ulcers start in the muscle tissue. Pressure ulcers can present within 24 hours of insult or can take as long as 5 days to appear. Therefore, if a patient has experienced damage to the muscle tissue, it may take days before there is any indication on the surface of the skin that a pressure ulcer has developed. Once the deep tissue damage presents itself, it's important that the clinician accurately stages it as a DTI.

> Epidermis and dermis are more resilient to the effects of pressure than muscle tissue.

Understanding the characteristics of a DTI helps clinicians determine if the pressure ulcer is a DTI or a superficial pressure ulcer. Initially, a DTI presents as a localized area of intact skin with dark discoloration, such as purple, maroon, or a bruiselike appearance, or a blood-filled blister. The tissue in the DTI area may be preceded by tissue that's painful, firm, mushy, boggy, or warmer or cooler than adjacent tissue.

On the other hand, a stage I pressure ulcer will have light discoloration, such as light pink or light red, of intact skin. If the pressure ulcer initially presents with a fluid-filled blister versus a blood-filled blister, it would be considered a stage II pressure ulcer.

Evolution of a DTI

As a DTI evolves, clinicians may see a thin blister over a dark wound bed on the skin. The skin may open up superficially, which causes many clinicians to erroneously stage the DTI as a stage II pressure ulcer. Clinicians should continue to stage the wound

as a DTI, but should describe the characteristics of how the skin is blistering or has superficial open areas. The DTI may further evolve and become covered by thin eschar, and further evolution may be rapid, exposing additional layers of tissue, even with optimal treatment. Once the DTI has fully opened, exposing the level of tissue damage, it can then be accurately staged as III or IV pressure ulcer.

Use staging only for pressure ulcers

The staging classification system should be used for pressure ulcers only to describe the level and type of tissue involvement. Accuracy of the stage is important not only to assess the progress of the wound but also to determine appropriate interventions. For more information about staging pressure ulcers, review the **National Pressure Ulcer Advisory Panel Pressure Ulcer Stages/Categories**.

Keep in mind that by accurately staging a pressure ulcer you can help your patients receive appropriate treatment so they can achieve the best possible outcomes.

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Jeri Lundgren is vice president of clinical consulting at Joerns in Charlotte, North Carolina. She has been specializing in wound prevention and management since 1990.

Online Resource

A. http://www.npuap.org/resources/educational-and-clinical-resources/npuap-pressure-ulcer-stagescategories/

Get the 'SKINNI' on reducing pressure ulcers

By Cindy Barefield, BSN, RN-BC, CWOCN

Like many hospitals, Houston Methodist San Jacinto Hospital uses national benchmarks such as the National Database of Nursing Quality Indicators (NDNQI®) to measure quality outcomes. Based on benchmark reports that showed an increased trend of pressure ulcers in critically ill patients in our hospital, the clinical nurses in our Critical Care Shared Governance Unit-Based Council (CCSGUBC) identified an improvement opportunity.

As a certified wound, ostomy, and continence nurse (CWOCN), I serve as a resource for the critical care units, so I worked with the council on the initiative. We used the Prosci ADKAR® change model to guide the project. This model incorporates five steps to ensure a smooth change process: Awareness, Desire, Knowledge, Ability, and Reinforcement.

Step 1: Awareness

The first step for the CCSGUBC was to raise awareness of the need for change. During a meeting, we reviewed occurrences of hospital-acquired pressure ulcers so members would know the problem.

Step 2: Desire

Awareness prompted council members to embrace the need for change to improve patient outcomes. Their desire for change fueled a discussion of opportunities for improvement.

(continued on page 28)

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(continued from page 26)

Step 3: Knowledge

Knowledge was the next step in the change process. Clinical nurses identified the need for additional resource nurses for each shift to help with pressure ulcer staging and skin care. This led to the development of "skin care champions," who act

as resource nurses for the clinical area. Clinical nurses interested in the project volunteered for the new role. Currently, there are seven skin care champions.

The skin care champions participated in an interprofessional education program led by the CWOCN, a physical therapy/clinical wound specialist, and a clinical dietitian. Topics included wounds, pressure ulcers, nutrition and wound healing, incontinence-associated dermatitis, and an overview on documentation of pressure ulcers. A review of current literature on best practices with skin care bundles also was included.

To provide additional educational support, all critical care nurses were given access to free NDNQI Pressure Ulcer Training modules via the hospital intranet.

The skin care champions embraced the challenge of creating a skin care bundle. As nurses with critical care experience, they were familiar with bundles for catheter-associated urinary tract infection and ventilator-associated pneumonia. They had implemented these best practices to improve patient outcomes and were eager to do the same for pressure ulcer prevention. They were confident that the success of the skin care bundle depended on synergy of all components as a whole rather than on a single component.

During an interactive session, the skin care champions developed the components of the skin care bundle based on a literature review for topics of importance to their patient population. They chose the following topics: **S**upport surface, **K**eep repositioning, **I**ncontinence management, **N**eeds/risks, and **I**mprove documentation, which form the acronym SKINNI. "What's the SKINNI?" has become a common question at our organization. The energy and enthusiasm for this nurse-led initiative have been widespread.

One challenge the skin care champions faced was adding documentation for the new skin care bundle to the electronic medical record (EMR). The clinical dietitian on the project team and a technologically savvy skin care champion collaborated to create a process that clinical nurses could use when documenting.

Step 4: Ability

Ability was the next step in the change process. At this stage, the skin care bundle was integrated into nursing practice. The team has developed many innovative ways to keep the focus on the new process:

(continued on page 30)

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(continued from page 28)

- The skin care champions and the nurse leader of the project wear a large button that reads "What's the SKINNI?" to raise awareness about the skin care bundle throughout the organization. The stick figure used with the message has become a symbol for the project.
- Small cardboard signs taped at each computer have the same "What's the SKINNI?" message to remind nurses to document the skin care bundle.
- The leader of the CCSGUBC and I send frequent e-mails with reminders and reinforcement messages.

> The skin care champions and the nurse leader of the project wear a large button that reads "What's the SKINNI" to raise awareness.

Step 5: Reinforcement

As with any change, reinforcement and sustainability of this new practice are necessary to achieve quality outcomes. We're using several reinforcement strategies, including:

- The skin care champions and I provide peer-to-peer feedback informally and face-to-face using criteria specific to the skin care bundle.
- A Life Saver® candy with a card that says "You are a Life Saver® for your patient today" is given to clinical nurses who correctly document the skin care bundle in the EMR. This provides reinforcement for the change in practice. Life Saver® cards are distributed as needed at the discretion of the skin care champions.
- The skin care champions conduct monthly pressure ulcer surveys to evaluate outcomes and share the results with the nursing team.

Success story

Skin care champions and members of the CCSGUBC presented the project for the hospital-system Shared Governance Conference. It was a great opportunity to share best practices with nurse colleagues. Over the past year, we have also been pleased to validate a significant decrease in the rate of pressure ulcers in critically ill patients. ■

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Cindy Barefield, RN is a certified wound, ostomy, and continence nurse at Houston Methodist San Jacinto Hospital in Texas.

What is Prove the Value program?

The Hill-Rom® Prove the Value program is based upon collecting and analyzing information on individuals who have recently used or are currently using a Clinitron® bed or P500 wound surface. The program will help demonstrate the value of advanced wound care solutions through local assessments within your facility.

After the data is collected and analyzed, Hill-Rom will partner with you to summarize key findings in a short case study.

Clinitron® Rite-Hite® System

Hill-Rom® P500 Surface

How will my facility benefit from participating in the program?

Improve Overall Wound Care

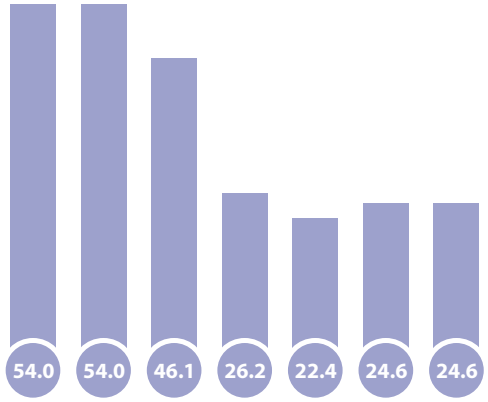
- The program provides an opportunity for a methodical assessment of advanced wound surfaces that can potentially lead to improved clinical results and enhanced resident satisfaction.
- The program provides an opportunity to review overall wound care performance, treatment protocols and usage of proper wound support surfaces within your facility.

Assist with Marketing Efforts

- The case study can be used to share clinical results with current and potential referral sources regarding residents who used advanced wound care technologies in your facility.
- The case study can be used to promote your facility's expertise to treat individuals with complex wounds.

Pressure Ulcer Healing Rate

54% overall reduction in pressure ulcer volume from week 1 to week 7



Percent Wound Healing Volume (LxWxD)

Enhancing outcomes for patients and their caregivers: Hill-Rom

Prove the Value Program

Outcomes and key findings

Facility

Golden LivingCenter Skilled Nursing Facility - Murrysville, PA

Overview

An 89 year old male, with a Stage IV pressure ulcer on his sacrum, experienced an overall reduction in wound volume by 54% while on Hill-Rom's Clinitron® Rite-Hite® system. The reduction occurred over a 7 week period.

Background

The graph below represents a positive wound healing outcome of a male resident in his late eighties. The resident developed a Stage IV pressure ulcer related to multiple health comorbidities, which included a Urinary Tract Infection, Anemia, COPD, and Diabetes Type II.

In an effort to treat the wound and prevent further skin breakdown, the resident was placed on a Group 2 Low Air Loss with Alternating Pressure support surface. Concurrently, the resident experienced decreased nutritional intake and refused fecal incontinence management – all of which could have impacted pressure ulcer healing. After five days on the Group 2 surface and still showing no observable signs of wound improvement, the Clinitron® Rite-Hite® system was considered for the resident.

The resident had a Braden Risk Assessment score of 15 and a sacral wound volume of 54 cm^3 at the time of the Clinitron® Rite-Hite® system placement. While on the Clinitron® Rite-Hite® system, the initial wound dressing used was an alginate twice a day. This was changed on week 4 to Santyl dressing once a day.

Pressure Ulcer Overview

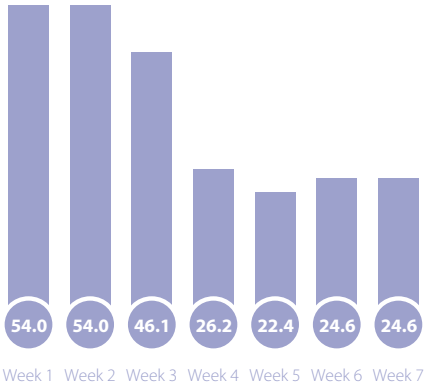
- **Anatomic Location:** Sacrum
- **Side of Body:** Left
- **Pressure Ulcer Stage:** Stage IV
- **Tunneling/Undermining:** Yes

Wound Healing Overview/Clinical Results

Over a 7 week period the patient realized an overall reduction in pressure ulcer volume by 54%. While on the Clinitron® Rite-Hite® system, the greatest wound healing occurred in week 4 when overall volume decreased 43% week-over-week. Importantly, there were no hospital admissions while the patient was on the Clinitron® bed.

Pressure Ulcer Healing Rate

54% overall reduction in pressure ulcer volume from week 1 to week 7



Percent Wound Healing Volume (LxWxD)

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Enhancing outcomes for patients and their caregivers: Hill-Rom

Prove the Value Program
Outcomes and key findings

Financial Considerations

There are a variety of factors that influence costs associated with healing complex pressure ulcers. These factors include the age and physical condition of the resident, type and number of comorbidities, treatments and dressings, and medical options such as Group 2* support surfaces, Group 3* Air Fluidized Therapy, and Negative Pressure Wound Treatment devices. Labor costs associated with wound treatments also need to be considered.

While every situation is unique, favorable results have been achieved when advanced wound care products have been used to treat pressure wounds. Research indicates these products have helped facilitate faster healing rates, can have a favorable impact on nursing care, and can promote increased resident satisfaction – all have a direct or indirect impact on costs.

Nursing home residents who had a Stage III/IV pressure ulcer, and were treated with a Group 3 surface, healed 4.4 times faster and had 2.6 fewer hospitalizations or ER visits compared to residents on Group 2 surfaces[1].

Bedside procedures such as washing and changing wound dressings are easier while residents are on a Group 3 product[2].

Residents who have been placed on the Clinitron® bed often acknowledge they are comfortable and experience less pain caused by pressure ulcers[2].

No high risk patients developed a pressure ulcer while on the P500 surface compared to 19% of individuals who developed an ulcer while on another powered air surface[3].

Hill-Rom is pleased to be partnering with facilities like Golden LivingCenter Skilled Nursing Facility in Murrysville to better evaluate and understand outcomes and costs associated with effective wound care management.

*According to the Healthcare Common Procedure Coding System (HCPCS), Group 2 support surfaces include powered air flotation beds, powered pressure reducing air mattresses, and non-powered advanced pressure reducing mattresses. Group 3 support surfaces are complete bed systems called air-fluidized beds. This product category uses circulation of filtered air through silicone beads, creating the characteristic of fluid.[4]

1. Ochs R. et al. Comparison of Air-Fluidized Therapy with Other Support Surfaces Used to Treat Pressure Ulcers in Nursing Home Residents. Ostomy/Wound Management 2005;51(2) 28-46.

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Enhancing outcomes for patients and their caregivers: Hill-Rom

Prove the Value Program Case Study

A clinical assessment on the outcomes and key findings of complete pressure ulcer healing while on the Clinitron® Air-Fluidized Therapy system

Facility

Courtyard Gardens Nursing and Rehabilitation Center – Middletown, PA

Overview

An 83 year old female resident with a hard-to-heal sacral pressure ulcer experienced complete wound healing within a month while on the Hill-Rom Clinitron® Air Fluidized Therapy system.

Background

The graph below represents a positive wound healing outcome of a female resident suffering from a sacral pressure ulcer initially recognized as unstageable. The resident had a high Braden risk score of 11 and medical diagnosis that included Diabetes Type II and Dementia – all of which were contributing factors to wound development.

The resident was placed on a Low Air Loss Mattress Replacement System in order to prevent further skin breakdown and treat the wound. Additionally, the resident's nutritional intake was closely managed so that she was receiving adequate levels of nourishment essential for wound healing. However, the pressure ulcer proved to be difficult to heal. Over several months, the resident was treated by a visiting wound care physician 28 times and the wound was debrided seven times. Multiple wound dressing selections were used and consisted of REPARA® Calcium Alginate Wound Dressing, Mepilex® Border Absorbent Foam Dressing, AQUACEL® Ag Hydrofiber® Wound Dressing with Silver Ribbon, and MEDIHONEY® Calcium Alginate Dressing.

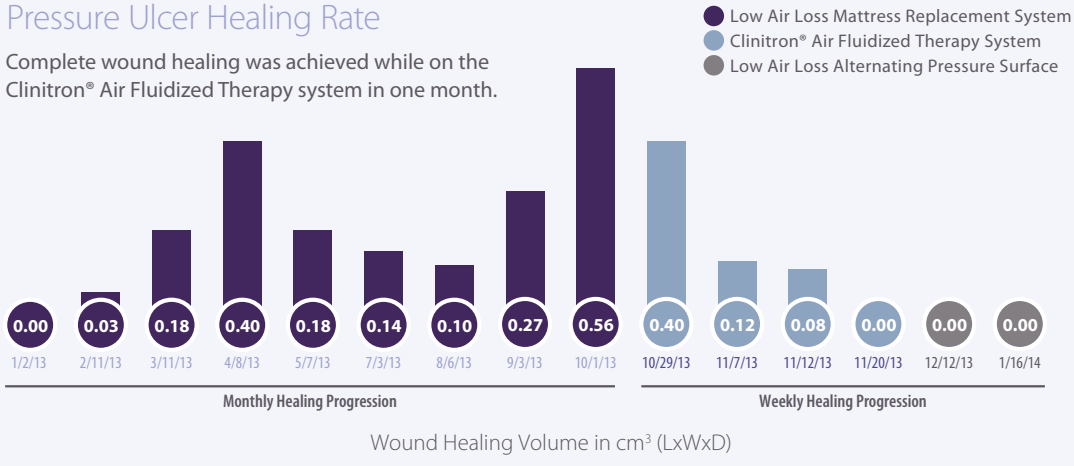
Despite standard wound therapy and treatment efforts, the pressure ulcer was not healing in an adequate or timely manner. Costs to treat were high and the resident's quality of life was affected as she experienced discomfort and pain from the wound. The Director of Nursing was eager to close the wound, so the Clinitron® Air-Fluidized Therapy system was ordered and placed for the resident on October 28, 2013.

Wound Healing Overview/Clinical Results

While on the Clinitron® Air Fluidized Therapy system, the most significant healing occurred between October 29 and November 7, when the overall wound size decreased 70% week-over-week. Furthermore, the resident's wound completely healed within one month of using the Clinitron® Air Fluidized Therapy system. The resident continued to use the Clinitron® Air Fluidized Therapy system until December 9, 2013, when she was stepped down to a facility-owned Low Air Loss Alternating Pressure surface. The wound has remained closed.

Pressure Ulcer Healing Rate

Complete wound healing was achieved while on the Clinitron® Air Fluidized Therapy system in one month.



Enhancing outcomes for patients and their caregivers: Hill-Rom

Prove the Value Program
Outcomes and key findings

Wound Healing Measurements

Date	Length (cm)	Width (cm)	Depth (cm)
1/2/13	0.6	0.4	0
2/11/13	1	0.3	0.1
3/11/13	1.8	0.5	0.2
4/8/13	2	0.5	0.4
5/7/13	1.5	0.4	0.3
7/3/13	1.4	0.5	0.2
8/6/13	1.3	0.4	0.2
9/3/13	1.7	0.8	0.2
10/1/13	2.1	0.9	0.3
10/29/13	1.9	0.7	0.3
11/7/13	1.5	0.4	0.2
11/12/13	1.6	0.5	0.1
11/20/13	0	0	0
12/12/13	0	0	0
1/16/14	0	0	0

Financial Considerations

There are a variety of factors that influence costs associated with healing complex pressure ulcers. These factors include the age and physical condition of the resident, type and number of comorbidities, treatments and dressings, and medical options such as Group 2* support surfaces, Group 3* Air Fluidized Therapy, and Negative Pressure Wound Treatment devices. Labor costs associated with wound treatments also need to be considered.

While every situation is unique, favorable results have been achieved when advanced wound care products have been used to treat pressure wounds. Research indicates these products have helped facilitate faster healing rates, can have a favorable impact on nursing care, and can promote increased resident satisfaction – all have a direct or indirect impact on costs.

Clinitron® Air Fluidized Therapy system reduced pressure ulcer incidence in extremely high risk patients, which resulted in an estimated 88% reduction in cost to treat.[1]

Nursing home residents who had a Stage III/IV pressure ulcer, and were treated with a Group 3 surface, healed 4.4 times faster and had 2.6 fewer hospitalizations or ER visits compared to residents on Group 2 surfaces.[2]

Residents who have been placed on the Clinitron® Air Fluidized Therapy system often acknowledge they are comfortable and experience less pain caused by pressure ulcers.[3]

Hill-Rom is pleased to partner with facilities like Courtyard Gardens Nursing and Rehabilitation Center in Middletown to better evaluate and understand outcomes and costs associated with effective wound care management.

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*According to the Healthcare Common Procedure Coding System (HCPCS), Group 2 support surfaces include powered air flotation beds, powered pressure reducing air mattresses, and non-powered advanced pressure reducing mattresses. Group 3 support surfaces are complete bed systems called air-fluidized beds. This product category uses circulation of filtered air through silicone beads, creating the characteristic of fluid.[3]

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Enhancing outcomes for patients and their caregivers: Hill-Rom

Palliative wound care

This approach brings patient-centered care to life.

By Gail Rogers Hebert, MS, RN, CWCN, WCC, DWC, OMS, LNHA

By preventing and relieving suffering, palliative care improves the quality of life for patients facing problems associated with life-threatening illness. This care approach emphasizes early identification, impeccable assessment, and treatment of pain and other issues—physical, psychosocial, and spiritual.

When relieving distressing symptoms takes higher priority than healing the wound, the patient may choose palliative wound care after consulting with the medical team. Addressing such issues as pain, odor, exudate, bleeding, infection, and cosmetic appearance, this treatment approach couples the elements of traditional wound care with symptom management. When delivered correctly, it brings patient-centered care to life.

Addressing pain

Many wound care patients have ongoing pain. Dressing removal can be the most painful part of wound management. If pain intensifies with each dressing change, the palliative-care approach may call for use of nonadherent long-wear-time dressings to reduce dressing-change frequency. Minimizing unneeded stimuli to the wound also is important; topical lidocaine preparations help by numbing the area locally during dressing changes.

Try to schedule dressing changes for a time when patients feel their best, if possible. Before you start, offer pain medication; wait until it reaches maximal effectiveness before assessing whether the patient is ready to begin the procedure. Also consider using music, relaxation, position changes, meditation, guided imagery, and transcutaneous electrical nerve stimulation. If the patient has discomfort during the dressing change, call frequent time-outs: Stop the procedure and ask if the patient would like a break. If so, don't resume activity until the patient consents.

Reducing odor

When unpleasant wound odor reduces quality of life, odor management becomes a palliative-care goal. Wound odor can embarrass the patient, causing depression and self-imposed isolation. Family members may feel guilty if they can't approach the bedside owing to overpowering wound odors. Wound odor also may decrease the patient's appetite, which impedes the palliative-care goal of providing adequate nutrition.

Because odor commonly results from bacteria in necrotic tissue, consider wound debridement if it's consistent with the patient's overall plan of care. Autolytic methods commonly are used because they're gentle and easy to implement with moisture-retentive dressing products. Other aids to managing odors include systemic and topical antibiotics, silver dressings, charcoal dressings, topical honey dressings, cadexomer iodine–impregnated dressings, and properly diluted antiseptic solutions.

> A palliative-care approach may avoid moist wound healing for dry and scabbed areas.

If wound odor permeates the patient's room, consider placing essential oils, kitty litter, or coffee beans nearby. Also consider using scented candles and having visitors place methylated preparations under their noses to mask the smell. These strategies help enable the patient to socialize with others.

Decreasing wound exudate

High exudate levels can pose challenges for both palliative wound care patients and clinicians. Consider using absorbent dressing products, such as foams, alginates, and specialty dressings. The goal is to manage exudate to keep excess moisture off surrounding skin, where it could cause further breakdown.

If exudate volume is high enough to necessitate frequent dressing changes or if odor control is needed, consider pouching the wound. Negative-pressure wound therapy (NPWT) helps contain the drainage if all other wound factors are consistent with use of this therapy. Pouching and NPWT help manage odor because these closed systems don't allow exudate to contact room air, except during equipment or dressing changes.

Unlike traditional wound care treatment, a palliative-care approach may avoid moist wound healing for dry and scabbed areas. Although moist wound healing is widely accepted to expedite healing, when the patient's prognosis is limited and the wound can be managed without further complications, healing takes lower priority, and scabbed areas can be left open to air with no dressing.

Managing bleeding

In malignant wounds, bleeding may result from the effects of cancer cells on blood vessels. Tissue becomes friable and more susceptible to local trauma. Bleeding also may result from overall health conditions, including abnormal platelet function.

For minor bleeding, calcium alginate dressings (typically used to absorb exudate) can help trigger the coagulation cascade. Also consider such products as absorbable gelatin powders, collagens, and vasoconstrictors. Chemical cauterization with silver nitrate may be required, as well as suturing of involved vessels and laser therapy.

Preventing and managing infection

Preventing wound infection is an important goal for all wound care patients. Use basic infection-prevention measures—good nutrition, wound cleaning, exudate management, and timely dressing changes—if these can be done in alignment with the patient's wishes. If healing is a palliative-care goal for a patient with a wound infection, traditional treatment approaches (including culturing) are appropriate. Be sure to weigh the benefits of treating the infection against the burden the treatments could place on the patient.

If wound healing isn't a goal for your patient, formal diagnosis and treatment of a wound infection isn't necessarily warranted. If treating it won't yield benefits and the patient can be maintained comfortably, the infection may not require active treatment.

However, in many cases, bacteria in the wound cause pain, odor, and high levels of exudate, which are problematic and reduce quality of life. In this case, to meet palliative-care goals you may need to take steps to reduce the bioburden. Try such traditional methods as debridement, antiseptics, antibiotics, and various antimicrobial dressings and therapies.

Improving cosmetic wound appearance

Most patients don't want others to see their wounds. If the wound is on the head, neck, or other highly visible area, this poses a challenge. Patients may be embarrassed and not want to frighten others by their appearance. A major challenge in palliative care is to dress the wound in an inconspicuous way that protects patients' dignity and supports their desire for socialization. One way to do this is to avoid bulky dressings in favor of lower-profile, more streamlined dressings.

Creating symmetry with dressings is important, too. Dressing just one side of the body immediately draws the observ-

er's eye to that side because of the asymmetry. So when feasible, use dressings to build up both sides of the body to restore symmetry and make the wound less noticeable. Also, dressings come in various skin tones to blend better against the skin; choose the most appropriate tone for your patient. And try to use clothing creatively to cover the wound.

Palliative wound care embodies the best of patient-centered care by focusing on what's best for the patient—even if that's not what's best for the wound. Aggressively managing the most distressing symptoms of chronic wounds helps maximize patients' quality of life. ■

Editor's note: Learn more about palliative care at **http://woundcareadvisor.com/palliative-wound-care-part-vol4-no1/**.

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Gail Rogers Hebert is a clinical instructor with the Wound Care Education Institute in Plainfield, Illinois.

Creating effective education programs on a shoestring budget

Following a few tips will leave clinicians wanting more.

By Jennifer Oakley, BS, RN, WCC, DWC, OMS

It's time again for annual staff education, and you, the certified wound clinician, need to teach the staff at your organization. You dream of staff entering a state-of-the-art classroom with computers at each station, mannequins, wound anatomy models, and enough products for each student to do hands-on demonstrations. But when you open your eyes, you're sitting in a room with ordinary tables and chairs, your laptop, a screen, a brain full of knowledge, and a very tight budget.

It can be challenging year after year to keep staff interested enough to attend these mandatory education sessions. Let's be honest: Staff are busy people. The last thing they want to do is leave all the work they need to do to come to a training session they don't think they need. They may feel they aren't learning anything new because year after year it's the same boring content being taught to them in the same boring way. To avoid that problem, you need to regularly reevaluate how you're teaching and to whom you are teaching, and think of creative ways to present the material.

How we learn

The first thing to consider when teaching staff is how to reach the adult learner. Adults learn in different ways. Some learn by listening (auditory), others by looking (visual), and some through a hands-on (tactile or kinesthetic approach). Each educational session you teach should give your attendees something to listen to, something to look at, and something to do with their hands, or some type of "hands-on" demonstration, to keep everyone involved. (See *Matching techniques to learning style.*)

In addition, consider the background and scope of practice of your audience. For example, your presentation on pressure ulcers might focus on prevention when you're speaking to nursing assistants, but focus on staging, care plan development, and treatment when your audience is a group of nurses.

Tools of the trade

It's important to ask yourself, What do I physically need in the classroom to teach the staff? Be careful, as this is where your "wants" often overtake the actual "needs." You may not have the funds in your budget to buy that mannequin with 14 wounds and 2 stomas nor the 12 laptops for your classroom. But I bet your budget allows you to afford some fun; after all, fun is free!

Laughter has been shown to prompt dopamine release and stimulate the frontal lobe to enhance thinking. This "feel good"

feeling lasts for hours, so the smile you create in the classroom carries back onto the unit and ultimately to the patient's bedside. Incorporating humor and fun into your education programs will not only keep staff coming back year after year but also build a stronger team.

You don't need the best high-end computer programs, wound models, or mannequins to teach wound or stoma assessment. You can use other budget-friendly methods to provide fun, effective education without breaking the piggy bank.

Start by jumping online. Search for free downloads that allow you to create Microsoft PowerPoint®-based games from templates in ***Jeopardy***[A] or other formats, or even make crossword puzzles. Download free pictures and clip art to capture the attention of visual learners and enhance the learning experience. Give handouts for those tactile learners to take notes on, underline, and follow along with your talk.

Enlist sales representatives for help. Frequently, they will provide free education about a product or topic and include hands-on demonstrations. Those lower-extremity wraps or negative pressure modalities are great topics for hosting a lunch-and-learn session with a sales rep. Be sure the rep understands the need to focus on education, not make a sales pitch.

You can also get creative and solve your own budget crisis by making your own training tools. (See *DIY training tools on a budget.*)

Set the stage

Next, take a look at the environment you're teaching in. Do you have enough room? Is there enough seating? How is the lighting? Will everyone be able to see and hear you?

Matching techniques to learning style

You can incorporate various techniques into your presentation to ensure you're reaching all three types of learners.

Type of learner	Sample teaching techniques
Auditory: Prefer discussion of concepts they have heard	Lecture, discussion groups, question and answer sessions
Visual: Learn by seeing	Pictures, clip art, posters
Tactile (or kinesthetic): Learn by touching, like to perform tasks	Hands-on demonstrations

For more information on learning styles, **access this video**[B]. Although the setting is a college, the principles still apply.

Before your presentation, practice, practice, practice; try to have one practice session in the room where you will be speaking. Time your presentation so you know you haven't tried to pack in too much information. A way to avoid this problem is to establish one or two overall goals for the typical 60-minute presentation and build in time for questions. Think of questions that might arise so you're ready with answers. If a question comes up that you don't know the answer to, simply say, "I don't know the answer. I'll find out and get back to you."

Stay on task

During the presentation, keep focused on your agenda. If a person raises a question that's off topic, you can say that you'll talk with him or her at the break.

Remain fair and unbiased during the presentation and cite your sources for information. Always be approachable. Remember, you're the staff's source for in-

DIY training tools on a budget

Here are examples of do-it-yourself training tools you can create for little cost. Once you open your imagination, the possibilities are endless.

1 Create your own game dice. Attach foam to each side of a six-sided Styrofoam cube. Then attach photos of all six stages of pressure ulcers. As students roll the dice, ask questions regarding stage, tissue type, treatment, and other facts.

2 Use inexpensive Crayola® Air-Dry-Clay (about $6 for a 2.5 lb bucket) to create wound and stoma models. (The author made a stoma model and a 14-cm × 14-cm wound model, and had clay left over.) Allow the models to dry for a day or two; then use acrylic paint and sponges to give color and texture (see progression). You're now ready to assess staff's knowledge. You can even give them scenarios on the wound or stoma and have them select appropriate treatment.

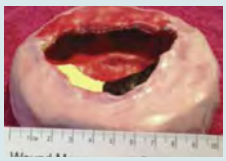
3 Stoma model created with clay

4 Finished stoma model. Participants can measure the height and size of the stoma and assess:

- color of the stoma
- lumen location
- mucocutaneous junction
- peristomal skin.

This model can also be used for learning how to properly fit and apply skin barriers.

5 Wound model created with clay



6 Finished wound model. Participants can measure the length, width, and depth; practice packing a wound; examine different tissue types; and assess:

- undermining
- tunneling
- epibole.

Participants then document their assessment.

formation and if they don't feel you're approachable, they won't ask questions or request clarification when they're unclear.

You also need a way to check if participants have learned the main points of the presentation. A brief verbal or written quiz in the format of a question-and-answer session will help you assess this and provides an additional opportunity for reinforcing important information.

Finally, end on time to show you respect the staff's time.

Passion for the profession

We always want staff to feel valued. Helping them stay current in their knowledge will help them keep the same passion for their profession they had when starting out in their careers. If, as the educator, you do your job well, it's likely that staff will do their job that way, too. Pay it forward with a smile. ■

Jennifer Oakley is a clinical instructor for Wound Care Education Institute.

Online Resources

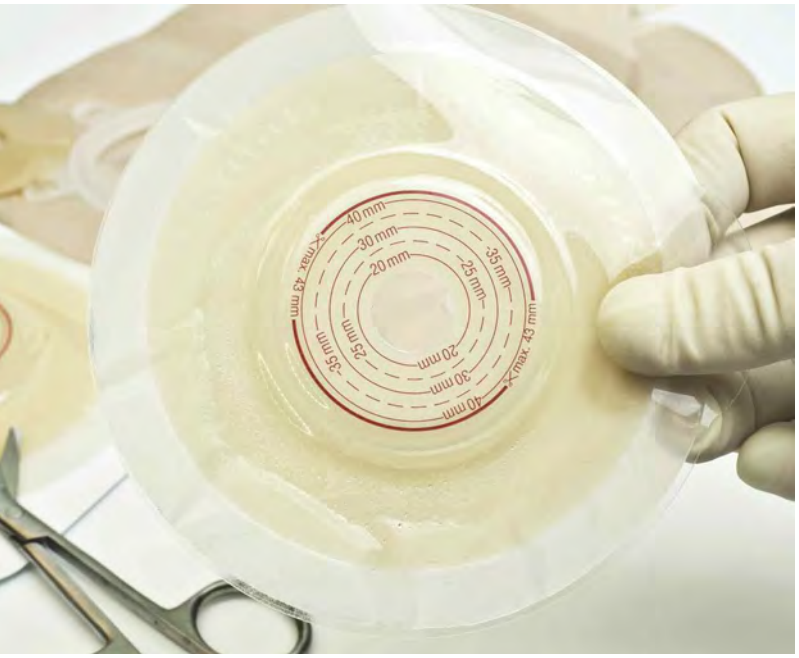
A. http://www.edtechnetwork.com/powerpoint.html
B. http://www.youtube.com/watch?v=oNxCporOofo

Helping patients overcome ostomy challenges

Physiologic, psychological, and psychosocial issues demand careful planning, monitoring, and creativity.

By Beth Hoffmire Heideman, MSN, RN

No one wants an ostomy, but sometimes it's required to save a patient's life. As ostomy specialists, our role is to assess and intervene for patients with a stoma or an ostomy to enhance their quality of life. We play an active role in helping patients perform self-care for their ostomy and adjust to it psychologically, starting even before surgery.



Preoperative considerations

Preparation for the ostomy is the most critical aspect of a healthy adjustment. When the ostomy is planned, the patient and family members are more likely to process the life changes it will entail. They can learn about anticipated postsurgical changes in the patient's diet, clothing, and sexuality, and family members can become more sensitive to the change in their loved one.

Assessment

On initial assessment, evaluate your patient's body configuration, stoma placement, skin integrity, physical limitations, psychological needs, and home caregiving system. Then develop a plan of care to mitigate problems that could impede the patient's ability to maintain and manage the ostomy system.

The human body comes in many configurations and sizes. Because each person's body is unique, clinicians may need to get creative to adapt the ostomy system to a patient's body. Options for adapting it to your patient's physical characteristics include using:

- a one-piece vs. a two-piece system
- a flexible flange, clear drape flange, or moldable flange.

Factors affecting decisions about an ostomy include its location, skin integrity, and physical ability. (See *Decision guide for ostomy products.*)

Location

The stoma may be located near an incision, under a peniculum, or in an ab-

Decision guide for ostomy products

The chart below suggests appropriate products to use based on your patient's physical condition or ostomy characteristics. It applies to patients with ileostomies, urostomies, or colostomies. Refer patients with special challenges to a certified wound clinician.

OSTOMY SYSTEM BASICS	
Description	**What to use**
Retracted stoma (below abdominal plane)	• Convex flange • Convex ring • Strip paste
Protruded stoma (above abdominal plane)	• Flat flange • Flat ring
Acidic effluence (ileostomy or urostomy)	• Extended-wear flange • Extended-wear skin protector • Convex adaptor ring
Basic (neutral) effluence (colostomy)	• Standard-wear flange • Standard skin protector • Stoma paste, adaptor rings • Adhesive strips
PERIWOUND SKIN	
Eroded or denuded	• Stoma powder • Use crusting method: Apply powder, dust off, apply skin prep; repeat three times.
Fungal rash	• Antifungal powder and skin protectant • Skin protectant product • Use crusting method: Apply powder, dust off, apply skin prep; repeat three times.
Infection or ulcer	• Calcium alginate silver powder • Hydrofera blue • Silver hydrofiber • Calcium alginate silver sheet
SPECIAL SITUATIONS	
Stoma located in abdominal fold or abnormal position	• One-piece system • Extended-wear products • Convex adaptor rings • Silicone tape • Pectin ring
Stoma located on a flat surface (regardless of body position)	• One- or two-piece system • Standard ostomy system
Difficult adherence	• Consider using ostomy belt, medical adhesive spray, or latex bonding cement.
Stoma near incision line	• Offset flange opening to right or left.
Hernia	• Ostomy hernia belt (requires physician order and prescription specifying ostomy hernia belt)
High-output stoma	• Adaptor valves connected to night drainage bag (for urostomy or ileostomy); acquire through patient's ostomy supply vendor.

Additional recommendations
If your patient's ostomy problems aren't resolving:
- Assess for patterns.
- Determine what occurred and identify related issues.
- Evaluate for changes in the patient's psychosocial status.
- Carefully observe the stoma as the patient passes effluent.

Case study 1: Stoma location challenge

When the patient declines to participate in the plan of care, solving a stoma location problem can be difficult, as this case study illustrates.

History

Mary, a 25-year-old moribund, obese, bedbound patient, had a colostomy to assist with healing a stage IV pressure ulcer adjacent to her anus. The stoma was placed under the pannus, and Mary's family was responsible for ostomy care.

Assessment

On assessment, Mary weighed 365 lb. Her diet was high in fat and salt. The pannus hung below her knees, restricting effluence flow and stretching the stoma. Four assistants and mobility devices were required to move her.

Plan

- Reduce weight of the pannus to lessen pressure on the stoma.
- Promote weight loss.
- Instruct the family in ostomy management.

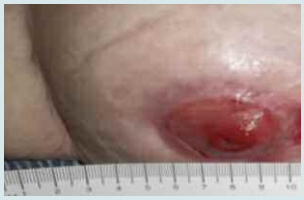
Actions

To address Mary's problems, the healthcare team:

- taught the family how to stop the pannus from applying pressure on the stoma by using a support binder
- educated the family on how to assess the effectiveness of pressure-reduction techniques for maintaining stoma function
- promoted weight loss by referring Mary to a registered dietitian
- referred Mary to a social worker for emotional counseling related to weight loss
- remeasured the stoma with each wafer change.

Outcome

Although the family responded well to teaching, Mary declined to follow through with the plan of care (which included weight reduction) and continued to gain weight. As a result, the stoma continued to stretch and flatten until it became level with the abdominal plane. As it kept enlarging, she chose to use an incontinence pad to collect effluence.



The stoma, 2.5 cm in height when first placed, became nearly level with the abdominal plane.

dominal fold. Ostomies in these areas can be hard to manage because of wound dressings, staples, adhesive strips, and body shape.

If the ostomy system is located *next to an incision*, you may want to adapt it by using stoma paste strips, moving the flange opening to the right or left, or using a pectin-ring stoma system without a flange. When the stoma is placed *under a peniculum*, pressure from the weight slows effluence (drainage) flow. To decrease pressure on the stoma and promote flow, an abdominal support binder can be used. (See *Case study 1: Stoma location challenge.*)

If the stoma is located *in an abdominal fold*, you can use a one-piece flexible ostomy system to increase adherence. When needed, add stoma paste strips and either medical adhesive spray or a bonding cement.

Skin integrity

Always consider skin integrity when choosing an ostomy system. Take into account the patient's fragility from such factors as age, medications, an irregular abdominal plane from previous surgeries or scarring, moisture or oily skin that limits flange adherence, and comorbidities (such as psoriasis, fungal infections, and ulcers). Options for maintaining skin and ostomy-system integrity include use of crusting, silicone flanges, stoma paste strips, or topical medication covered with hydrocolloid or extended-wear products.

Physical abilities

Be aware that a patient with limited muscle function may have limited gross and fine motor skills, which makes self-care a challenge. Expect patients with such conditions as multiple sclerosis and muscular dystrophy to have limited strength. Those with amyotrophic lateral sclerosis, Parkinson's disease, or stroke are likely to have limited muscle control. In each case, re-

habilitation support and physical or occupational therapy can help the patient learn how to adapt to the stoma.

Psychological adjustment

Hidden issues can make it hard for patients to adjust to the ostomy system. The patient who undergoes an unplanned ostomy has to relearn life skills while grieving the change in self-image and dealing with a sense of having an imperfect body, loss of control, or feeling like an infant. To this patient, the ostomy system may become the enemy, so to speak. The patient may refuse to learn about self-care and ignore ostomy complications. To help patients regain a sense of control, clinicians must address body image with them and provide education.

The following interventions can help the patient focus on the positive:

- Suggest that the patient keep a diary of daily activities.
- Listen actively as the patient expresses thoughts and feelings.
- Confront false ideations, such as "I'm a baby now," "No one will ever touch me again," or "I smell" with such positive statements as "I'm still an adult," "My wife loves me," or "I can use deodorizers to make sure the ostomy doesn't smell."
- Recommend ostomy support groups or spiritual or psychological counseling.

Mental illness

Mental illness also can cause ostomy management problems. Mentally ill patients may respond differently to an ostomy than other patients, leading to lack of proper ostomy self-care. If mental illness goes unrecognized and unaddressed, the stoma or peristomal skin may become damaged.

As a wound care clinician, be sure to carefully review reports of unresolving ostomy malfunction issues, note their frequency, and observe malfunction patterns. When these malfunctions occur consistent-

Case study 2: Effect of psychological distress on ostomy care

As this case study shows, psychosocial and physiologic problems may converge to cause stoma retraction and other ostomy challenges.

History

Jim, a 70-year-old man with a history of high anxiety and schizophrenia, had been managing his ostomy independently in his own home. Five weeks after moving to a senior apartment complex, his ostomy system began to constantly release (pull away) from his abdomen and the peristomal skin became denuded. Jim's family decided to sever contact with him because of his multiple calls to them for help with the ostomy. At that point, the patient's physician wrote a referral for home care.

Assessment

Jim's stoma height had been 2.5 cm. On assessment, the home care nurse found a rosy red stoma and found that hyperperistalsis caused it to retract deeply into the abdomen when the patient experienced anxiety or stress, most notably at night. Psychological assessment revealed Jim was lonely and felt rejected by his family.

Plan

- Monitor the stoma for physical changes.
- Assess the flange-release pattern.
- Observe the patient's behavior.
- Provide emotional support to the patient.
- Consult a social worker to identify another caregiving option.

Actions

To address Jim's problems, the nurse:

- used a convex flange to manage leakage of effluence under the flange, which occurred with stoma retraction
- used the crusting method (stoma powder and skin protectant) to promote healing and protect peristomal skin
- obtained an order for dicyclomine to reduce hyperperistalsis, which had caused the stoma to retract into the abdomen
- advised the patient to listen to music on the radio at low volume at night to decrease his sense of loneliness and anxiety.

Outcome

The social worker was able to connect Jim with an adult day-care program and activities taking place near where he lived. Over a 2-month period, he achieved an intact ostomy system and continued with community outreach supports.

Note that the stoma has retracted into the abdomen.

ly, assess the patient for mental illness and provide a referral to appropriate support services. (See *Case study 2: Effect of psychological distress on ostomy care.*)

Depressed patients may avoid the stoma or ostomy system. They may fail to apply the system or, conversely, leave it on for extended periods to avoid thinking about the body-image change it represents. On the other hand, highly anxious patients may be hypervigilant and remove the ostomy system frequently to check on the stoma. In patients with either depression or high anxiety, the stoma and peristomal skin may break down.

Bipolar patients may have difficulty learning about self-care because of their high or low affect. They should receive care from a mental health specialist, along with appropriate medications, to support their ability to learn and adjust to the ostomy.

Unmedicated schizophrenic patients may have trouble processing the presence of a stoma. They may perceive the stoma or ostomy system as alien and attack it, injuring themselves or damaging the stoma or peristomal skin. This response demands careful mental health observation and medication monitoring to prevent further bodily harm.

Home caregivers' behavior

The patient's home caregivers also may be a hidden cause of ostomy system problems. They may be unable to accept the change in their loved one, and their negative reactions may result in the patient's failure to perform self-care. This lack of self-care reflects the patient's distress. Observe carefully for disharmony among caregivers and address any issues. Through active listening or referral to a support group or counseling, you can help ease negative behaviors.

Financial constraints

If because of complications, your patient needs additional ostomy supplies beyond what the insurance company allows:

- Ask the physician to write a letter of medical necessity to the insurance company and vendor that explains the reason for product overage.
- Contact the ostomy supply vendor to request free samples.
- Contact ostomy support group members, who may be able to provide samples.

Overcoming adversity

A patient with a malfunctioning ostomy system or a maladaptive response to it can pose a challenge for the ostomy management specialist or the wound, ostomy, and continence nurse. But with careful planning, monitoring, and creativity, such challenges can be overcome so the patient can have the highest possible quality of life. ■

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Beth Hoffmire Heideman is a wound care nurse at McAuley Seton Home Care in Cheektowaga, New York.

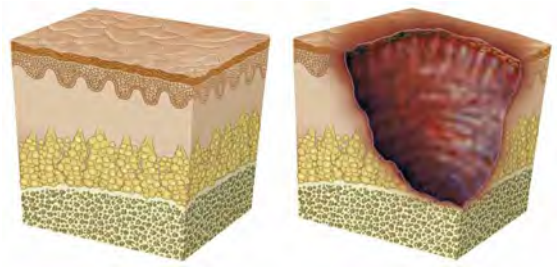
Clinician RESOURCES

The resources below will help you address issues in your practice.

NPUAP position statement on hand check for bottoming out

Use of the hand check to determine "bottoming out" of support systems should be limited to static air overlay mattresses, according to a position statement from the National Pressure Ulcer Advisory Panel (NPUAP).

"**Hand check method: Is it an effective method to monitor for bottoming out[A]**" adds that the hand check method is "inappropriate" for replacement mattresses and integrated bed systems and calls for additional research for a bedside method to determine when a support surface has bottomed out.



Summary of pressure ulcer treatment guidelines from ACP

The National Guideline Clearinghouse, part of the Agency for Healthcare Research and Quality, has published a summary of "**Treatment of pressure ulcers: a clinical practice guideline from the American College of Physicians[B]**" (ACP).

The **full guidelines[C]** can be found in the March 3 issue of the *Annals of Internal Medicine*.

NIOSH education on nurses' work hours

The National Institute for Occupational Safety and Health (NIOSH) has published "**NIOSH training program for nurses on shift work and long work hours[D]**." Part 1 of the program discusses the risks associated with these work hours related to fatigue, and Part 2 is designed to increase knowledge about personal behaviors and workplace systems to reduce the risks.

Continuing education credit is available for the course.

Implementing guidelines in an organization

Struggling to implement practice guidelines where you work? Check out "**Implementing guidelines in your organization: What questions should you be asking[E]**?" an expert commentary in the National Guideline Clearinghouse, part of the Agency for Healthcare Research and Quality. ■

Online Resources

A. http://www.npuap.org/wp-content/uploads/2012/01/Hand-Check-Position-Statement-June-2015.pdf

B. http://www.guideline.gov/content.aspx?f=rss&id=49051&osrc=12

C. http://annals.org/article.aspx?articleid=2173506

D. http://www.cdc.gov/niosh/docs/2015-115/

E. http://www.guideline.gov/expert/expert-commentary.aspx?f=rss&id=49423

Note from Executive Director

By Cindy Broadus, RN, BSHA, LNHA, CLNC, CLNI, CHCRM, WCC, DWC, OMS

National Alliance of Wound Care and Ostomy®

The theme for this issue of *Wound Care Advisor* is "the best of the best," so it seemed appropriate for this note to be about the "best of the best" from the NAWCO viewpoint.

What does "best of the best" mean? Merriam Webster defines the word best as "the greatest degree of good or excellence." In addition, Merriam Webster defines the word excellence as, "extremely high quality."

One high-quality conference full of excellence is the Wound Care Education Institute's Wild on Wounds (WOW) Conference. Since its inception in 2004, this conference has provided bedside clinicians with the opportunity to come together to learn, network, and have fun! After 12 years, WOW continues to be the go-to conference of the year for many clinicians. With a loyal group of dedicated clinicians, continued growth, and a focus on what is best for the attendees, the WOW conference makes it on my "best of the best" list.

As WOW has grown, so has the number of Wound Care Certified clinicians. With more than 18,000 certified clinicians, NAWCO continues to be the largest certification body in the United States. I think about all of these clinicians with a great sense of pride for each and every one of them and what they have accomplished. Enhancing their knowledge and increasing their presence was an individual decision made by each person. Why? Because they wanted to be the "best of the best."

I'd like to take that one step further. What constitutes the "best of the best" in this group of talented, intelligent, compassionate clinicians? It's clinicians who consistently go above and beyond to make it better for patients who are often overlooked. Others perceive these clinicians as "going the extra mile" and "giving 150%."

As WOW and the certified number of clinicians grew, we knew there needed to be a way to acknowledge these excellent practitioners. Who better to choose these deserving clinicians than the people they work with on a daily basis? That's why in 2007 NAWCO established the Awards Committee and decided on the criteria for four awards to be given that year: Outstanding WCC of the Year, Outstanding Work in Diabetic Wounds, Outstanding Research in Wound Care, and a WCC Scholarship to an Outstanding Clinician working in the field.

Every year, the clinicians who are chosen receive their 15 minutes of fame. But what happens when the curtain goes down, the lights go out, and everybody goes back home? We may think that these individuals are forgotten, but I believe that among their peers, patients, and families they remain famous. With that said, I wanted to give them all another 15 minutes of fame by recognizing them again. I am certain that today they play as vital a role in the care of wound patients as they did the year they were chosen.

Outstanding WCC of the Year

2007 – LuAnn Reed RN, WCC, DWC

2008 – Rachel Pacheco RN, WCC

2009 – Shane Pilkington OT, BS, WCC
2010 – Sharon Perry RN,NP-BC,WCC
2011 – Beny Tadina-Himes RN, WCC
2012 – Monessa Wadford RN, BSN, WCC
2013 – Ava Chavaz RN, WCC
2014 – Chelsey Hawthorne RN-BC, WCC, BSN

Outstanding Work in Diabetic Wounds
2007 – Michelle Goncalves, LPN, WCC
2008 – Stanley Rynkiewicz RN, BSN, WCC, DWC
2009 – Catherine Jackson RN, WCC
2010 – Kulbir Dhillon NP,WCC
2011 – Nenette Brown MSP, NP, WCC
2012 – Sandra Leamer-Newhouse RN, WCC
2013 – Jessica Kuznia PT, WCC, DWC
2014 – Anna Ruelle DPM, WCC

Outstanding Research in Wound Care
2007 – LuAnn Reed RN, WCC, DWC
2008 – Amy Narciso RN
2009 – Anne Blevins RN, BSN, WCC
2010 – Christine Fanelli MS, NP-BC, CWS, WCC
2011 – Connie Johnson RN, MSN, WCC, DWC, LLE, OMS
2012 – Julie Lientz BSN, RN, WCC, CWON
2013 – Connie Johnson RN, MSN, WCC, DWC, LLE, OMS
2014 – Michael Katzman BSN, RN, ONC, WCC

WCC Scholarship
2007 – Janet Jones, RN
2008 – Christina Albright RN, WCC
2009 – Rebecca Thompson RN
2010 – Maren Zinski RN, BSN, WCC
2011 – Marlene Bilello RN, WCC
2012 – Melinda Kofmehl, RN
2013 – Angela Rumery LPN
2014 – Craig Johnson RN, BSN

I would like to extend my personal thank you to all the winners for the job that you do, the care you provide, and the compassion you display. We are honored that you chose the WCC credential to enhance your professional careers. Your commitment to learning, along with your expertise, makes a difference in the lives of wound care patients you encounter across the United States.

This is our ninth year of recognizing individuals who have been chosen by their peers as the "best of the best." Be sure to attend Saturday's Session 114 (Paying it Forward) to meet the Award Winners for 2015.

In the next issue, I will continue our series of Board member introductions, but I enjoyed this break in the series to be able to recognize the "best of the best" in the wound care field. Congratulations, once again, to all of the past award recipients. You are all truly the "best of the best."

New certificants

Below are WCC, DWC, and OMS certificants who were certified from June to July 2015.

James Adams
Laila Alamgir
Judy Bakken
Michelle Ball
Dana Barr
William Barrett
Bettina Bates
Kristin Batts
Stina Bjurstrom
Autumn Blevins
Barry Bontempo
Catherine Boone Randolph
Jennifer Brenker
Peaches Brown
Jessica Brown
LeeKoshia Campbell
Jo Cavalier

Sonja Chase
Christina Christianson
Donna Cinco
Eugenio Clarke
Conrado Clemente
Delores Coats
Marcella Crider
Berta Deanda
Catherine DelBello
Sirner Dhaliwal
Lisa Diaz
Jacinda Diplacido
Karen Dirschel
Kathy Do
Jessica Dominguez
Brooke Donston
Julie Dow
Harmony Eck
Sina El-Khoury
Misty Emmert
Lauren Everett
Renee Fagone
Rebecca Franklin
Susan Giardino
Mercy Golo
Kristy Gosson
Dawn Graham
Melodie Grainger
Jeffrey Green
Sandra Guzman
Linda Hammons
Paige Harkness
Homa Hasnain, MD
Catherine Haug
Rebecca Haugaard
Cheryl Hill
Danielle Hilton
Zachariah Hlad
Karin Hohl
Tammy Hopkins
Kimberly Inge
Joseph Jack
Kalonji Jahi
Katlen Jean-Louis
Lilia Karlstad
Amanpreet Kaur
Laura Kelly
Misty Keough
Judith Kimatu
Susan King
Suzanne Kinsella
Laurie Knowles
Maria Kopp
Eleni Kordazakis
Kimberly Krull
Wanda Kudaj
Amanda Kvien
Charleen Lance
Joy Langley
Gina Larochelle
Jennifer Larson
Elizabeth Lawinger
Amanda Lejeune
Dawn Lewis
Linda Lough
Maria Romina Sancha Malvar
Yunaidys Marrero
Larry Martindale
Katherine Marx
Margaret Mason
Jacob Massey
Carolyne Mburu-Gerena
Maurice McCain
Leann McCurdy
Lisa McGee
Debra Meyers
Stephanie Miller
Travis Miller
Shelley Miller
Christina Minteer
Lisa Moffa
Oscar Moreno
Anita Mukerjee
Sandra Muller White
Emily Nordberg
Joan Ondrejka-Cole
Dava Owen
Cora Palmer
Bentley Pannell
Christine Paranal
Tiffany Pearson
Lacy Pessagno
Jean Peterson
Lindsey Peterson
Gina Piccione
Shawnee Putnam
Amy Reagan
Christy Recke
Wadella Richards
Carmella Richardson
Jennifer Riley
Maria Rodriguez
Wanda Rodriguez
Pelaghia Rosca
Susan Rothenberger
Margaret Ruddy
Sarah Rudolph West
Elisa Salgado
Debra Saltsman
Laura Scalf
Judy Seals
Rashda Shaheen
Doreen Sharp
Alexandra Short
Kristina Shroll
Sarah Skretkowicz
Neika Small
Amy Smith
Dona Smith
Brenda Steepleton
Jenny Stout
Evan Swanson
Lauren Szilagyi
Gail Taylor
Yoseph Tesfaye
Monique Thomas
Tammara Travis
Stephanie Unger
April Vandergriff
Laurie Vandermeer
Angela Vaughn
Ginger Wade
Kimberly Waters
Crystal Waters
Nancy Wates
Tiffany West
Betsy Wright
Lily Yanacek
Julieann Yerkes
Milissa Zack
Cyan Zieske

Recertified certificants

Below are WCC, DWC, and OMS certificants who were recertified from June to July 2015.

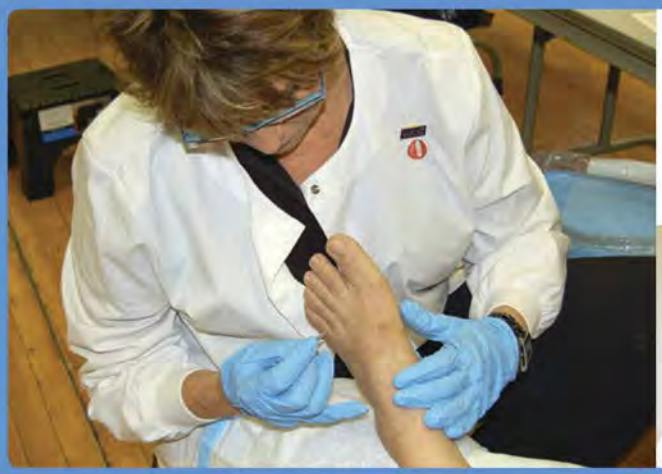
Christen Adam
Marilyn Al-Twal
Pamela Anderson
Elija Armstrong
Laura Avelar
Maureen Avery
Emma Basco
Christine Bell
Stacey Bencic
Christina Berry
Carol Blankenbaker
Sue Bruno
Rebecca Buhidar
Joanne Burbank
Teresa Caldwell
Vivienne Campbell
Brenda Carriere
Christa Cavallo

Gail Christopherson-Brown
Marion Clarke
Toni Clarke
Audrey Cokenour
Paula Corris
Susan Crowley
Emma Czazasty
Nydia Del Toro Rivera
Carla Donahue
Michele Doughty
Denise Drake
Shirley Drake
Marilou Ermitano-Martel
Barbara Fisher
Elizabeth Flores
Jennifer Foster
Celia Garcia
Megan Gilmore
Sandra Goodin
Consuelo Grant
Donna Greenfield
Wuntanee Gruzen
Lisa Harris
Rebecca Hecox
Tina Hover
Melanie Hughes
Jacqueline John-Mull
Audrey Joy
Natalia Jungwirth
Gahan Kaloostian
Ana Kim
Barbara Kimsza-Mendes
Diana Kircher
Stacy Krakower
Tamara Kuhn
Michelle Ladreyt
Michele Leahy
Deborah LeBourgeois
Anusa Lepadatu
Kathleen Levering
Lorraine MacFeeters
Elizabeth Maloney
Eleanor Mangsat
Angela Maroon
Carla Marshall
Marilyn Martinez-Wool
Lori Masterson
Lisa McCoy
Amy McIntire
Matthew McNutt
Suh-Lian Mei
Ricardo Mendoza
Carmen Milagros Garcia
Patricia Mitchell
Christine Montalbano-Kroon
Holly Montgomery
Lakisher Morgan
Joni Myhre
Tami Naumann
Sandra Nease
Suzanne Nelson
Gina Nguyen
Kevin Nimmo
Casie Noel
Josephine Notter
Trisha Novello
Dola Oelslager
Bernadette O'Keefe
Kristianne Ong
Omobola Opawoye
Jill Osborn
Maribel Pale
Teresa Quirk
Elizabeth Rata
Janice Reich
Nora Rowsey
Laura Russell
Marcus Scharre
Kela Schram
Mary Schwartz
Jan Sevieri
Sharon Shirley
Donna Skillett
Kathleen Smith
Jennifer Smith-James
Diane Stieg
Sheila Sud
Salimma Thomas
Maureen VanHorn
Dawn Verscheure
Kathy Jean Walter
Shannon Wasmer
Joan White
Crystal Wilkes
Regina Williams
Denise Williams
Mary Williams
Sharon Zaverl
Sandra Zsikla

The Right Choice for Wound Care and Ostomy Certification

WCC
WOUND CARE CERTIFIED

Wound
Care
Certified



DWC
DIABETIC WOUND CERTIFIED

Diabetic
Wound
Certified

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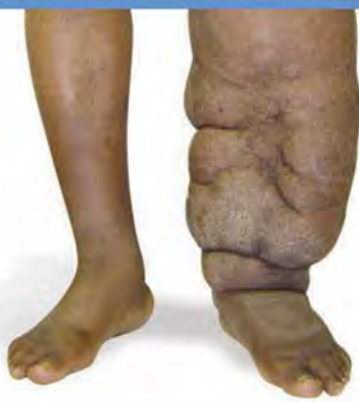

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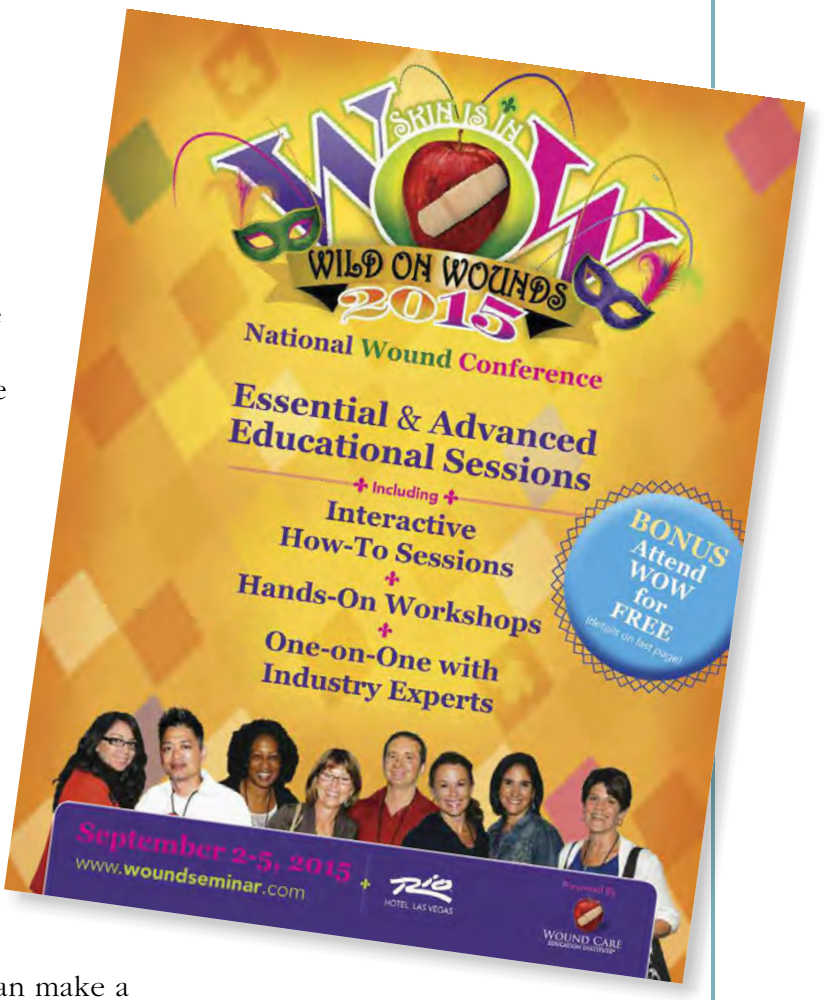
NATIONAL WOUND CONFERENCE

Rio Hotel, Las Vegas, Nevada

September 2–5

www.WoundSeminar.com

Wild on Wounds
WELCOME



Dear Colleagues,

We're thrilled to have you at this year's WILD ON WOUNDS℠ (WOW) National Conference!

Being wound care clinicians ourselves, we understand the unique challenges that you face, especially when reimbursement policies require you to provide quality care with fewer resources.

The WOW conference is designed to provide you with information on current standards of care, new prevention and treatment ideas, and tools that you can use to spread your knowledge.

One component of being current with wound care is your familiarity with new technologies and devices that prevent wounds or heal wounds faster. Our industry experts are here to provide you with hands-on training and education about their products so you can make a measurable impact on wound outcomes.

Wound Care Advisor created this useful Exhibitors Guide for you to carry with you during exhibit times. We also suggest that you keep it as a resource tool for future reference.

We hope you enjoy this Exhibitors Guide, and we'll see you at the Exhibitors' Showcase!

Nancy Morgan & Donna Sardina
Wound Care Education Institute

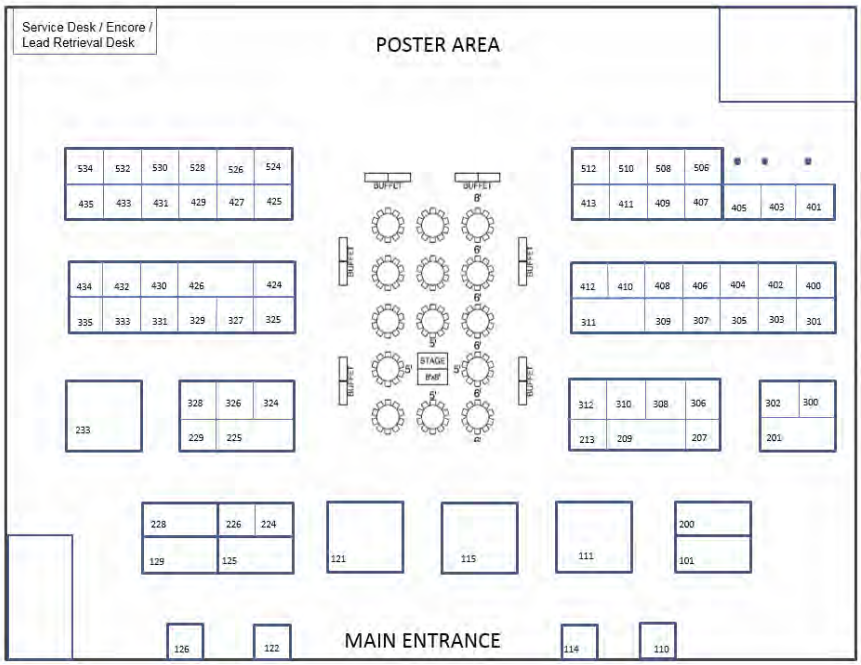
Wild on Wounds
2015 EXHIBITORS

Meet with exhibitors, participate in hands-on labs, and learn about new wound products and enter to win a great prize!

Exhibits are located in the Exhibit Hall of the Rio Hotel.

Exhibit hours:
Thursday, Sept. 3
11:30 am to 2:00 pm

Friday, Sept. 4
11:30 am to 2:00 pm



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AFH is a marketing company that promotes jewelry in over 50 conventions annually. We cater to today's modern, working professional.
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See us in the common area

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Providing superior bedside surgical wound care for patients in long term health care facilities. Advantage Surgical & Wound Care provides superior professional surgical wound care within the nursing home, SNF, or long term care facility. We provide treatment to those patients that have difficulty traveling to a separate facility for wound care. Surgical treatment that once required lengthy clinic appointments, expensive emergency transfers, or loss of patients to hospitalizations can now be easily performed at bedside, with minimal disturbance to the patient's daily activities, or the facility's nursing staff.
www.advantagewoundcare.org
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2150 Cabot Blvd. West
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http://alliqua.com
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Andover Healthcare is a leading manufacturer of cohesive bandages, committed to innovative technology. CoFlex TLC–2 Layer Compression is available in a variety of options; Standard, Lite, XL, Calamine or Zinc.
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or call: 800-432-6686.
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Geneva, IL 60134
www.silverlon.com or call: 888-551-0188.
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B. Braun is a leading manufacturer of infusion therapy and chronic care products with an environmental & personal focus. B. Braun's Wound Care products are designed to be cost effective, and easy to use for clinicians and patients.
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Calmoseptine, Inc.

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401 Funston Road
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Central Solutions is an FDA and EPA registered formulator of skin care & infection control offerings, including the BoaVida line of wound prevention products.
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Cork Medical

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www.corkmedical.com or call: 866-551-2580.
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Crawford Healthcare is a rapidly growing international company dedicated to developing innovative wound and skin treatments that advance clinical practice while being gentle on patients and budgets.
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Derma Sciences is a tissue regeneration company focused on advanced wound and burn care. We are committed to the development of intelligent wound management products that address clinical need throughout the continuum of care. Our full portfolio of products include: MEDIHONEY®, XTRASORB®, BIOGUARD®, ALGICELL® Ag, TCC-EZ® and amniotic tissue products AMNIOEXCEL® Amniotic Allograft Membrane and AMNIOMATRIX® Amniotic Allograft Suspension.
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Joerns RecoverCare

2430 Whitehall Park Dr,
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Charlotte, NC 28273
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www.recovercare.com
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2015 WILD ON WOUNDS EXHIBITORS GUIDE

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See us in the common area

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See us at booth 303

Wound Zoom

2916 Borham Ave.
Stevens Point, WI 54481
Affordable wound measurement camera that measures and documents in a minute. Saves you time and money with accurate, repeatable, non-contact measurement. We also offer software to manage & analyze your data, and facilitate telemedicine.
www.woundzoom.com or call: 888.237.0546.
See us at booth 301

WOUND CARE EDUCATION INSTITUTE®

Wound Care Education Institute®

25828 Pastoral Drive
Plainfield, IL 60585
WCEI provides comprehensive online and onsite courses in the fields of Skin, Wound, Diabetic and Ostomy Management. Health care professionals who meet the eligibility requirements may sit for the prestigious WCC®, DWC® and OMS national board certification examinations through the National Alliance of Wound Care and Ostomy® which is the largest group of multidisciplinary certified wound care professionals in the United States.
www.wcei.net or call: 877-462-9234
See us at booth 201

Vendor Showcase Exhibits

Meet with exhibitors, participate in hands-on labs, and learn about new industry products. *Chance to win a great prize!*

Thursday
September 3, 2015
11:30 a.m. – 2:00 p.m.

Friday
September 4, 2015
11:30 a.m. – 2:00 p.m.

anasept®

KILLS SUPER BUGS

Pathogenic Bacteria:
Acinetobacter baumannii
Carbapenem Resistant *E. coli (CRE)*
Clostridium difficile (including spores)
Escherichia coli
Methicillin Resistant *Staphylococcus aureus (MRSA)*
Proteus mirabilis
Pseudomonas aeruginosa
Serratia marcescens
Staphylococcus aureus
Vancomycin Resistant *Enterococcus faecalis (VRE)*

Pathogenic Fungi:
Aspergillus niger
Candida albicans

Spores:
Clostridium difficile

Pathogenic Virus:
HIV

Wound Cleanser | Wound Irrigation | Wound Gel

Anasept® Antimicrobial Skin & Wound Care Products

- FDA-Cleared, broad-spectrum antimicrobial
- Unique, Patented Formula
- Safe, non-cytotoxic and tissue compatible
- Clinically Tested*
- 18 months to 2-year shelf life
- Anasept Gel is Medicare reimbursed HCPCS # A6248

Anasept is a registered trademark of Anacapa Technologies, Inc
*J. Lindfors, Ostomy/Wound Management. 2004; 50 (8): 28-41.

ANACAPA® TECHNOLOGIES

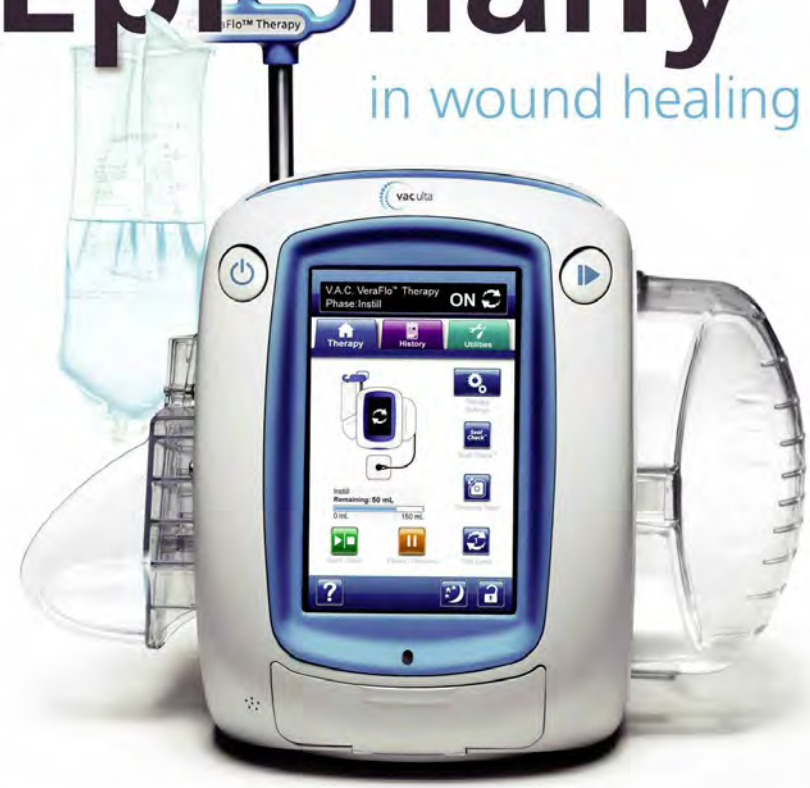
800-489-2591
www.anacapa-tech.net

v.a.c. veraflo™

V.A.C. VERAFLO™ THERAPY

Visit us at Booth #101

Epiphany in wound healing



Physicians at MedStar Georgetown University Hospital, Center for Wound Healing, assessed the effectiveness of **V.A.C. VeraFlo™** Therapy with instillation of Prontosan® Wound Irrigation Solution vs. NPWT with V.A.C.® Therapy and noted the following potential benefits:*

They noted:

Reduced OR Visits

Reduced Length of Stay

Reduced Time to Final Surgical Procedure

For more information, visit **www.vaculta.com.**
Educational resources from nurse educators coming soon at **www.VeraFlo.com**

*Powers KA, Kim PJ, Attinger CE, et al. Early Experience with Negative Pressure Wound Therapy with Instillation in Acutely Infected Wounds. Poster presented at the 2013 Symposium of Advanced Wound Care (SAWC) Spring Conference, May 1-5, 2013, Denver, CO.

Important Note: Specific indications, contraindications, warnings, precautions and safety information exist for KCI products and therapies. Please consult a physician and product instructions for use prior to application. Rx Only.

KCI An Acelity Company

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