Wound Care ADVISOR

PRACTICAL ISSUES IN WOUND, SKIN, AND OSTOMY MANAGEMENT

Official journal of National Alliance of Wound Care and Ostomy®

Understanding herpes zoster

Frequently asked questions about support surfaces

Skin substitutes

Managing chronic venous leg ulcers

Antibiotic use in pressure injury infections

November/December 2016 • Volume 5 • Number 6

WoundCareAdvisor.com

A HEALTHCOM MEDIA Publication

Clinitron® Air Fluidized Therapy Bed

Tried, Tested, and Trusted: Provide the highest quality of care for your higher-acuity patients

Reduce risk through proven clinical outcomes:
(study available upon request)

- Up to 4.4x faster healing of pressure ulcers which may mean cost savings/decreased expense to the facility[1]
- Up to 2.6x lower hospital and emergency room visits[1]

Improve caregiver efficiency with Clinitron® Rite Hite® System

- Fully electric with an adjustable bed height
- Head of bed articulation (with HOB angle indicator)

For a free patient evaluation or for more information, contact your local Hill-Rom Account Manager by calling 800-638-2546.

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.

191289 rev 2 26-FEB-2015 ENG – US

Enhancing outcomes for patients and their caregivers.®

Hill-Rom

The comforts of home

We offer home care equipment solutions that meet the unique needs of patients dealing with spinal cord injuries, cerebral palsy, and other severe mobility-limiting conditions

- Talk directly to a Hill-Rom patient advocate about our home care beds and patient lifts
- Learn about payment and payer options
- Ask about free delivery and set up

Contact Us Today
800.833.4291
hillromathome@hill-rom.com
www.hill-rom.com

189531 rev 1 15-OCT-2014 ENG – US

Enhancing outcomes for patients and their caregivers.®

Hill-Rom

PUBLISHED BY

HealthCom Media
259 Veterans Lane, Doylestown, PA 18901
Tel: 215/489-7000 • Fax: 215/230-6931

Chief Executive Officer
Gregory P. Osborne

Digital Design Manager
Michelle Welliver

Finance Director/Operations
MaryAnn Fosbenner

Finance Manager/Operations
Nancy J. Dengler

Wound Care Advisor (ISSN 2168-4421) is published by HealthCom Media, 259 Veterans Lane, Doylestown, PA 18901. Printed in the USA.

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.

Wound Care ADVISOR

Wound Care ADVISOR
Practical Issues in Wound, Skin, and Ostomy Management
Official journal of National Alliance of Wound Care and Ostomy

CONTENTS

November/December 2016 • Volume 5 • Number 6
WoundCareAdvisor.com

page 9

FEATURES

DEPARTMENTS

page 27

page 17

BIOPAD™

Caring for Wounds

BIOPAD™ COLLAGEN WOUND DRESSING

A POWERFUL ENHANCER OF THE WOUND HEALING PROCESS!

BioPad is an equine collagen primary wound dressing for topical use to control minor bleeding and for the management of chronic non-healing wounds to help in wound closure.

BioPad is a sponge shaped device, constituted exclusively by lyophilized type I native heterologous equine collagen which transforms in a soft gel allowing contact with the entire wound bed.

- **100% pure native equine type 1 collagen**
- **Highest collagen content on the market**
- **Easy to use for hard to heal wounds**
- **Covered by Medicare Part B through most major national DME companies**

For more information visit

www.angelini-us.com

ANGELINI

Angelini Pharma Inc.
8322 Helgerman Court - Gaithersburg - MD 20877 -USA
1 (800) 726-2308
www.Angelini-us.com

From the EDITOR

Knowing when to ask for help

As a wound care expert, you're probably consulted for every eruption, scrape, and opening in a patient's skin. Occasionally during a patient assessment, you may scratch your head and ask yourself, "What is this? I've never seen anything like it."

Most wound care experts want to help heal everyone, and most of us love a challenge. But when should we step back and consider referring the patient to another clinician?

In a recent conversation, a healthcare clinician told me about the "magic" protocol she uses at the outpatient wound clinic where she works. A patient came to the clinic complaining that the current ostomy skin barrier kept leaking and wouldn't stay in place longer than 2 days. The clinician started the patient on her protocol, which involves multiple ostomy products, some of them off-label, along with a heating pad to achieve an ostomy skin barrier that stays in place for at least 3 weeks with no change required.

For 3 weeks? Wow! The clinician was so proud she was saving the patient money. But by asking a few questions, I found out that:

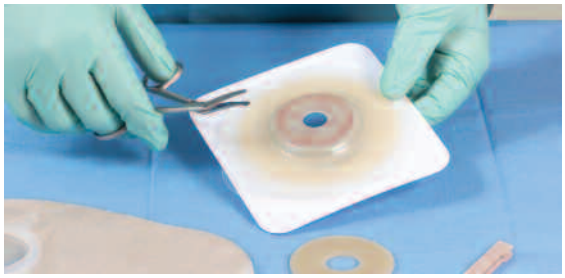
- the skin barrier manufacturer recommends a maximum 7-day wear time for the product
- the clinician learned about the protocol from another clinician, who'd heard about it from a patient
- none of the clinicians involved had ostomy management training
- the patient now has severe denuded skin around the stoma.

Moral of the story: Even though this clinician had good intentions, she should have referred her patient to an ostomy specialist. She still would have saved her patient money and time and would most likely have prevented the peristomal skin breakdown.

When encountering a skin or wound problem for the first time, we need to look beyond just the local wound bed and complete a holistic, detailed review of the patient's clinical history, including systemic, local, and psychosocial factors that affect wound healing. If you can't determine an obvious cause or you lack the knowledge or experience to deal with the patient's problem, initiate a referral immediately. For wounds on the lower extremities, refer the patient to a vascular surgeon or specialist or to another wound specialist; for a diabetic wound or toenail complications, refer the patient to a diabetic specialist, podiatrist, or another wound specialist; for an unknown rash, skin eruption, or allergic reaction, refer the patient to a dermatologist; and for ostomy or stoma-related problems, refer the patient to an ostomy specialist or surgeon.

Don't let pride get in the way of doing what's best for your patients. To paraphrase Karen Marie Moning, author of *Dreamfever*, Strength isn't about being able to do everything alone. Strength is knowing when to ask for help and not being too proud to do it.

Donna Sardina, RN, MHA, WCC, CWCMS, DWC, OMS
Editor-in-Chief, *Wound Care Advisor*
Cofounder, Wound Care Education Institute
Plainfield, Illinois



Prevalence of ostomy-related complications identified

One or more complications occur in 35% of patients by 1 year after ostomy surgery, according to a study in *Ostomy Wound Management*.

"**The prevalence of ostomy-related complications 1 year after ostomy surgery: A prospective, descriptive, clinical study**[A]" reports that the most common surgical complication is a colostomy hernia. The use of convexity is more common among patients with a stoma height ≤ 5 mm than in patients with a stoma height > 5 mm and among patients who have emergency, as opposed to elective, surgery.

Braden Scale in long-term care

"**A meta-analysis to evaluate the predictive validity of the Braden Scale for pressure ulcer risk assessment in long-term care**[B]," published in *Ostomy Wound Management,* concludes that the scale has only moderate predictive validity and low predictive specificity for pressure injuries in long-term care residents.

The researchers examined eight studies with 1,489 residents meeting the criteria to be included in the analysis.

TMA as an option for diabetic foot gangrene

Transmetatarsal amputation (TMA) is often a valuable option for patients with diabetic foot gangrene who need an amputation, concludes a study in *International Wound Journal*.

The authors of "**The care of transmetatarsal amputation in diabetic foot gangrene**[C]" reviewed 51 articles and note that TMA can prevent "major limb loss and minimise loss of function."

CNA education improves pressure injury care

A 1-hour education program for certified

nursing assistants (CNAs) reduces pressure injury and increases reporting of skin breakdown, according to "**Exploring the effect of educating certified nursing assistants on pressure ulcer knowledge and incidence in a nursing home setting**[D]," published in *Ostomy Wound Management*.

The program, completed by 33 CNAs in a care facility for residents age 55 years and older, included early identification, treatment, and prevention. From 3 months before the intervention to 3 months after, the number of pressure ulcers decreased 12.3%, from 5 to 0, while CNA reports of skin breakdown increased by 68%, from 8 to 17.

Exercise and diabetes

Exercise interventions can improve static balance, lower-limb strength, and gait in older adults with diabetes, reports a study in the *Journal of Diabetes and Its Complications*.

"**Exercise interventions for the improvement of falls-related outcomes among older adults with diabetes mellitus: A systematic review and meta-analyses**[E]" included 10 randomized clinical trials.

Depressive symptoms common in patients with chronic wounds

Symptoms of depression are common in patients with wounds, particularly those with wounds of 90 days or longer in duration and with pain related to the wounds at initial examination, according to a study in *Wound Repair and Regeneration*.

"**Depressive symptoms in patients with wounds: A cross-sectional study**[F]" reports that 81.5% of the 260 patients had minimal to severe depressive symptoms, with 22.1% having moderate to severe symptoms.

Pioglitazone and diabetes prevention

"**Pioglitazone prevents diabetes in patients with insulin resistance and cerebrovascular disease**[G]" examined 3,876 patients with recent ischemic stroke or transient ischemic attack (TIA), no history of diabetes, fasting plasma glucose < 126 mg/dL, and insulin resistance by homeostasis model assessment of insulin resistance score > 3.0. Patients were randomly assigned to pioglitazone or placebo.

The study in *Diabetes Care* concludes that in patients with insulin resistance but without diabetes who have had a recent ischemic stroke or TIA, pioglitazone decreases both the risk of diabetes and the risk of subsequent ischemic events.

Innovative Wound Care Solutions

Eclypse Boot®

Is a super absorbent dressing specifically designed to manage high levels of fluid in the lower limb. The pre-shaped design overcomes the traditional time-wasting complexities of dressings 'leaky legs' with a combination of dressings that are often bulky and restrict patient mobility.

CLICK HERE TO VIEW OUR VIDEO WITH NANCY MORGAN AND THE ECLYPSE BOOT®

Now 30% More Absorbent...

- Prevents maceration
- Enhancing the patients quality of life
- Reduces dressing changes
- Highly absorbent
- Breathable, non-strikethrough backing
- High MVTR

DUKAL Corporation • 2 Fleetwood Court • Ronkonkoma, NY 11779 •
Tel: 1-800-243-0741 | Email: advancisinfo@dukal.com
www.dukal.com

Identifying risk of lymphedema

According to a study presented at the American Society for Radiation Oncology 2016 Annual Meeting, among patients who have undergone radiation therapy after breast cancer, the risk for lymphedema is highest 2 to 3 years after treatment.

Results from the study, **reported**[I] by Medscape, could affect when clinicians have patients return for lymphedema monitoring.

Multidisciplinary team improves venous ulcer care

A multidisciplinary team approach to managing chronic venous ulcers increases wound healing, according to an article in the *International Journal of Surgery*.

"**Management of venous ulcers: State of the art**[H]" also concludes that a multidisciplinary team helps reduce wound-associated pain and required daily wound treatments. ■

Online Resources

A. o-wm.com/article/prevalence-ostomy-related-complications-1-year-after-ostomy-surgery-prospective-descriptive

B. o-wm.com/article/meta-analysis-evaluate-predictive-validity-braden-scale-pressure-ulcer-risk-assessment-long

C. onlinelibrary.wiley.com/doi/10.1111/iwj.12682/full

D. o-wm.com/article/exploring-effect-educating-certified-nursing-assistants-pressure-ulcer-knowledge-and

E. jdcjournal.com/article/S1056-8727(16)30637-7/fulltext

F. onlinelibrary.wiley.com/doi/10.1111/wrr.12484/full

G. care.diabetesjournals.org/content/39/10/1684

H. sciencedirect.com/science/article/pii/S174391911630173X

I. medscape.com/viewarticle/869873

Herpes zoster: Understanding the disease, its treatment, and prevention

Learn how to assess shingles and who should get the vaccine to prevent it.

By DeSales Foster DNP, CWOCN, CRNP, GNP-BC, AGACNP-BC

Herpes zoster (HZ, also called shingles) is a painful condition that produces a maculopapular and vesicular rash. Usually, the rash appears along a single dermatome (band) around one side of the body or face.

In most cases, pain, tingling, burning, or itching occurs a few days before the rash. Next, blisters form, scabbing over in 7 to 10 days. In rare cases, the rash is widespread, resembling varicella zoster (VZ, or chickenpox) rash. Pain can range from mild to severe and may be dull, burning, or gnawing. It may last weeks, months, or even years after the blisters heal. Shingles on the face may impair vision or hearing.

According to the Centers for Disease Control and Prevention (CDC), nearly 1 million Americans get shingles each year and one in three have it during their lifetime. Caused by the same virus that causes chickenpox, shingles can occur in anyone who has had chickenpox. Most people who develop shingles have just one lifetime episode, but a small percentage have second or even third episodes.

Risk increases with age. Nearly half of shingles cases occur in people ages 60 and older; about half of those older than age 85 develop shingles. Immunocompromised persons also are at higher risk. About 100 Americans die of shingles-related causes each year, nearly all of them elderly or immunocompromised.

How shingles develops

After a person recovers from chickenpox, the VZ virus (VZV) lies dormant in the cranial nerves, dorsal roots, and sensory ganglionic neurons. If this latent virus reactivates, it moves down the nerve fibers to the skin, where it multiplies to cause the rash. VZV can spread through direct contact with the rash to someone who has never had chickenpox—typically a child, who might then get chickenpox, not shingles.

Complications

Shingles complications are more common

Shingles complications

Besides postherpetic neuralgia, shingles complications may include:

- secondary bacterial skin infection
- vasculopathy
- myelopathy
- meningoencephalitis
- cerebellitis
- viral dissemination
- organ or visceral infection
- meningitis
- skin scarring
- Hutchinson's sign or herpes zoster (HZ) ophthalmicus associated with lesions on the nose.

Immunosuppressed patients may develop a cutaneous disseminated rash similar to that of a drug-related eruption, as well as pneumonia, hepatitis, or encephalitis with or without rash. Shingles rash on the face or head may cause vision or hearing problems, eye infection and inflammation with pain, uveitis, keratitis, acute retinal necrosis, and progressive outer retinal necrosis, which may threaten vision. An ophthalmologist should assess the patient immediately and start antiviral therapy as soon as shingles is confirmed to help prevent hearing or vision impairments.

Rare complications

Ramsay Hunt syndrome (RHS, or HZ oticus) is a rare neurologic disorder that can result from shingles affecting the facial nerve. Marked by facial palsy and an ear or mouth rash, RHS also can cause ear pain, ringing in the ears, hearing loss, nystagmus, vertigo, and vesicles in the ear canal. Zoster sine herpete, another rare complication, is marked by chronic lower-extremity pain without a rash.

in elderly and immunocompromised patients. One in five people with shingles develops postherpetic neuralgia (PHN)—a painful, chronic condition in the area affected by VZV. Typically, PHN lasts longer than 90 days after the shingles rash heals. Pain can be debilitating, leading to activity limitations and decreased quality of life. (See *Shingles complications*.)

Signs and symptoms

Signs and symptoms of shingles occur in three stages.

- *Prodromal stage*. Before the rash appears, patients may have pain, acute neuritis, burning, itching, numbness, tingling, a stabbing sensation, fever, chills, headache, malaise, fatigue, and extreme sensitivity on one side of body. Depression and stomach upset may occur, too.
- *Active stage*. A unilateral erythematous and maculopapular rash arises in one to three dermatomes, along with malaise, headache, nausea, and fever. Vesicles form within 12 to 24 hours, pustules appear in 1 to 7 days, and crusting occurs in 2 to 3 weeks. Once the crusts fall off, the skin remains erythematous and hyperpigmented or hypopigmented with scars.
- *Chronic stage*. After the rash resolves, PHN may occur. The pain may be constant, brief, or sharp. Pain from constant PHN usually is described as deep; brief pain as shooting or stabbing pain, possibly tic-like. Sharp pain may radiate and can be triggered by light touch.

Diagnosis

Differential diagnosis includes impetigo, contact dermatitis, folliculitis, scabies, insect bites, candidiasis, dermatitis herpetiformis, and drug eruptions. If clinical diagnosis isn't possible, laboratory tests may be done. The gold standard for diagnosing shingles is a tissue culture, but results may take 3 to 7 days, delaying treatment. The enzyme-linked immune-sorbent assay and additional tests confirm diagnosis. Rapid diagnosis also may be obtained using polymerase chain reaction. Laboratory confirmation is mandatory for pregnant women, newborns, immunocompromised patients, and those with atypical rashes.

Treatment

The goal of treatment is to reduce pain and complications, expedite rash healing, and decrease new lesions. Treatment decreases viral shedding and risk to others in contact with the patient. It should start immediately to avoid cutaneous dissemi-

nation, PHN, and other serious complications. Starting antiviral therapy within 72 hours of rash onset reduces PHN risk. In elderly and immunocompromised patients, clinicians must act quickly to reduce the risk of cutaneous or visceral rash dissemination, prevent secondary bacterial infections, and decrease time to healing.

Up to 4% of people with shingles need to be hospitalized for I.V. antiviral therapy (acyclovir or valacyclovir) to treat or help avoid complications related to advanced age, immunosuppression, superinfection, and ocular or visceral involvement. All immunocompromised patients should receive treatment; those with organ transplants or disseminated shingles should be hospitalized for immediate I.V. antiviral therapy. Patients with neurologic complications typically receive 10 to 14 days of I.V. acyclovir therapy and are monitored closely for signs and symptoms of stroke.

In a double-blind study comparing valacyclovir therapy (1,000 mg three times daily for 7 to 14 days) to acyclovir therapy (800 mg five times daily for 7 days), the two regimens yielded similar resolution of cutaneous lesions. Valacyclovir produced a slight reduction in acute neuritis.

Cranial neuropathies should be verified by testing for VZV DNA or antiviral IgG antibody in cerebrospinal fluid. Patients may be treated with oral acyclovir, but those who are immunocompromised or have ophthalmic rash distribution require I.V. acyclovir 10 to 15 mg/kg three times daily for 5 to 7 days.

Supportive care includes use of nonadherent dressings, soothing emollients, cleansing, and compresses to reduce the risk of bacterial superinfection. (See *Home care.*)

Treating PHN

PHN treatment isn't definitive. Medications used to manage shingles pain also can be used for PHN. They include antidepressants, analgesics, topical lidocaine or capsaicin, anticonvulsants, gabapentin, divalproex sodium, tramadol, and opioids. Ablation and nerve blocks or stimulators also may be given.

Home care

Home care for patients with shingles may include acyclovir topical cream, with or without antibiotic ointment, for those with signs of secondary bacterial infection. Cool compresses may reduce itching, which can lead to secondary infections.

Teach home caregivers to protect themselves from contact with the patient's vesicles, especially if they haven't received the shingles vaccine, and to avoid contact until the vesicles crust over. Urge them to use protective gear. Encourage both patients and caregivers to wash their hands frequently and avoid contact with pregnant or immunocompromised persons.

Preventing shingles

The shingles vaccine (Zostavax®) decreases the risk and severity of shingles, as well as the risk and severity of PHN in people who develop shingles after vaccination. It reduces shingles incidence by 64% in persons ages 60 to 69 and by 38% in those ages 70 and older. In persons ages 70 and older, it reduces PHN incidence by 67%.

A live attenuated vaccine, the vaccine is approved to prevent shingles in adults ages 50 and older and is recommended for those ages 60 and older. Studies show it's safe and effective, with no adverse side effects except headache and minor discomfort at the injection site.

In 2015, Marin et al studied the impact of shingles vaccine in a matched case-control study. Results showed a 58% reduction in prodromal symptoms and a 61% reduction in PHN. This was the first study to show reductions in pain severity and discomfort after vaccination. Further studies are underway to determine if a shingles vaccine can be developed that will maintain its efficacy as the adult ages. A new HZ subunit vaccine (a vaccine free

from viral nucleic acid that contains only specific protein subunits of the HZ virus) looks promising in maintaining efficacy at 97% and doesn't diminish with age.

Contraindications

Contraindications for the shingles vaccine include:

- AIDS or other clinical indications of human immunodeficiency virus
- immunosuppressive therapy (including high-dose corticosteroids)
- hematopoietic stem cell transplantation
- recombinant human immune mediators and immune modulators
- current cancer treatment with radiation or chemotherapy
- bone marrow or lymphatic cancer (such as lymphoma)
- congenital or hereditary immunodeficiency
- pregnancy.

The shingles vaccine decreases the risk and severity of shingles.

Women should avoid getting pregnant for 3 months after receiving the vaccine. Also, persons with moderate or severe acute illness (including those with a temperature of 101.3° F [38.5 ° C] or higher) should wait until they recover before getting the vaccine.

How to help patients with shingles

Singles can be extremely painful and debilitating, even decreasing quality of life. By understanding the disease, its treatment, and complications, you can help those who have this illness. To help prevent shingles, teach patients about the shingles vaccine and urge those ages 60 and older to get it.

DeSales Foster is a wound care nurse practitioner at Riddle Memorial Hospital in Media, Pennsylvania.

Selected references

Albrecht MA. Clinical manifestations of varicella-zoster virus infection: herpes zoster. UpToDate, Inc.; 2016. uptodate.com/contents/clinical-manifestations-of-varicella-zoster-virus-infection-herpes-zoster?source=search_result&search=varicella-zoster+virus&selectedTitle=1%7E150

Bader MS. Herpes zoster: diagnostic, therapeutic, and preventive approaches. *Postgrad Med.* 2013;125(5):78-91.

Centers for Disease Control and Prevention. Shingles surveillance. August 19, 2016. cdc.gov/shingles/surveillance.html.

Cohen JI. A new vaccine to prevent herpes zoster. *N Engl J Med.* 2015;372(22):2149-50.

Cunningham AL, Lal H, Kovac M, et al; ZOE-70 Study Group. Efficacy of the herpes zoster subunit vaccine in adults 70 years of age or older. *N Engl J Med.* 2016;375(11):1019-32.

Devi MR, Haribabu Y, Velayudhankutty S, et al. Review on: shingles, its complications & management. *Pharma Innov J.* 2013;2(4):21-7.

Gilden D, Nagel M, Cohrs R, Mahalingam R, Baird N. Varicella zoster virus in the nervous system. *F1000Res.* 2015;4:pii.

Harpaz R, Ortega-Sanchez IR, Seward JF; Advisory Committee on Immunization Practices, Centers for Disease Control and Prevention. Prevention of herpes zoster: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Recomm Rep.* 2008;57(RR-5):1-30.

Johnson BH, Palmer L, Gatwood J, et al. Annual incidence rates of herpes zoster among an immunocompetent population in the United States. *BMC Infect Dis.* 2015;15:502.

Lal H, Cunningham AL, Godeaux O, et al; ZOE-50 Study Group. Efficacy of an adjuvanted herpes zoster subunit vaccine in older adults. *N Engl J Med.* 2015;372(22):2087-96.

Marin M, Yawn BP, Hales CM, et al. Herpes zoster vaccine effectiveness and manifestations of herpes zoster and associated pain by vaccination status. *Hum Vaccin Immunother.* 2015;11(5):1157-64.

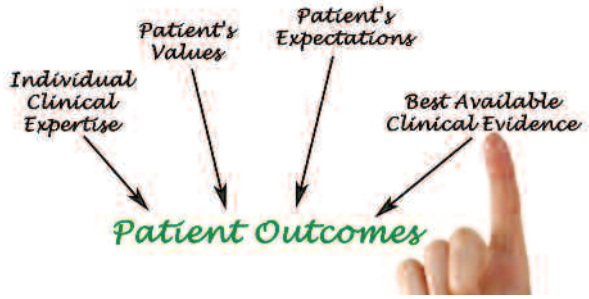
Nagel MA, Gilden D. Neurological complications of varicella zoster virus reactivation. *Curr Opin Neurol.* 2014;27(3):356-60.

Nagel MA, Gilden D. Update on varicella virus vasculopathy. *Curr Infect Dis Rep.* 2014;16(6):407.

Oxman MN, Levin MJ, Johnson GR, et al; Shingles Prevention Study Group. A vaccine to prevent herpes zoster and postherpetic neuralgia in older adults. *N Engl J Med.* 2005;352(22):2271-84.

Managing chronic venous leg ulcers — what's the latest evidence?

By Jodi McDaniel, PhD, RN



Chronic venous leg ulcers (CVLUs) affect nearly 2.2 million Americans annually, including an estimated 3.6% of people over the age of 65. Given that CVLU risk increases with age, the global incidence is predicted to escalate dramatically because of the growing population of older adults. Annual CVLU treatment-related costs to the U.S. healthcare system alone are upwards of $3.5 billion, which are directly related to long healing times and recurrence rates of over 50%.

CVLUs are not only challenging and costly to treat, but the associated morbidity significantly reduces quality of life. That makes it critical for clinicians to choose evidence-based treatment strategies to achieve maximum healing outcomes and minimize recurrence rates of these common debilitating conditions. These strategies, which include compression therapy, specialized dressings, topical and oral medications, and surgery, are used to reduce edema, facilitate healing, and avert recurrence.

In 2006, the Wound Healing Society (WHS) developed guidelines for treating CVLUs based on human and animal studies; the guidelines were updated in 2015 by an advisory panel of academicians, clinicians, and researchers, all with expertise in wound healing. The guidelines are organized by categories: diagnosis, compression, infection control, wound bed preparation, dressings, surgery, use of adjuvant agents (topical, device, and systemic), and long-term maintenance. Each recommendation is evaluated according to strength of evidence. (See *Levels of evidence.*)

WHS guidelines provide clinicians with evidence-based treatment recommendations for caring for patients with CVLUs. A summary of the guidelines regarding compression, infection control, wound bed preparation, dressings, and long-term maintenance, is provided in this article. You can access the full guidelines at **http://onlinelibrary.wiley.com/doi/10.1111/wrr.12394/full**.

Lower extremity compression

External compression has long been the gold standard for treating venous hypertension and the associated edema and ulcerations of the lower extremities. Level 1 recommendations from WHS state to use:

- a class 3 (most supportive) high-compression system to enhance healing of CVLUs. Methods of compression include multilayered elastic compression, inelastic compression, Unna's boot, and compression stockings. Consider patient cost and comfort when choosing the method.
- intermittent pneumatic pressure with or without compression dressings to stimulate venous return.

Levels of evidence

These are the definitions of levels of evidence used by the Wound Healing Society.

Level I	Meta-analysis of multiple randomized controlled trials (RCTs) or at least two RCTs supporting the intervention of the guideline
Level II	Less than Level I, but at least one RCT and at least two significant clinical series or expert opinion papers with literature reviews supporting the intervention; experimental evidence that is quite convincing, but not yet supported by adequate human experience.
Level III	Suggestive data of proof of principle, but lacking sufficient data, such as meta-analysis, RCT, or multiple clinical series

Infection control

Preventing or treating infections as soon as possible are important because overgrowth of bacteria in the wound bed impedes wound healing. The only level I recommendation from WHS in this category is to debride (using sharp, enzymatic, mechanical, biological, or autolytic methods) necrotic or devitalized tissue that can be a source of bacterial growth.

Level II recommendations:

- Collect a tissue biopsy or use a quantitative swab technique to determine the type and level of infection in the CVLU.
- Prescribe an appropriate topical or systemic antimicrobial therapy based on the findings from tissue biopsy or culture and discontinue the antimicrobial agent when the bacteria is "in balance" (defined as $\leq 1 \times 10^5$ CFU/g of tissue with no beta-hemolytic streptococci) to reduce the chances of cytotoxic effects or bacterial resistance.
- Use systemic gram-positive bactericidal antibiotics to treat cellulitis around the CVLU site.
- Reduce bacteria levels in CVLU tissue before trying surgical closure ($\leq 1 \times 10^5$ CFU/g of tissue with no beta-hemolytic streptococci).

Wound bed preparation

Wound bed preparation is used to accelerate healing or to facilitate the effectiveness of other therapeutic measures. To achieve these goals, the level I recommendation from WHS is to document the history, recurrence, characteristics (location, size, exudate, staging, condition of surrounding skin, pain), and healing rate of CVLUs on a regular and ongoing basis to determine if care plans need reassessment.

Level II recommendations:

- Complete a comprehensive history and physical examination to assess for factors that may be contributing to tissue damage. These factors include systemic diseases, medications, nutritional status, and potential causes of inadequate tissue perfusion and oxygenation, such as dehydration and cigarette smoking.
- Perform maintenance debridement to remove cellular debris, necrotic tissue, excessive levels of bacteria, and senescent cells, which will help create an optimal healing environment.

WHS also makes one level III recommendation, which is to cleanse the wound with sterile water or saline initial-

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
Pathogenic Virus:
HIV

Anasept® Antimicrobial Skin & Wound Products

- No known bacterial, fungal or viral resistance to Anasept.
- Safe, non-cytotoxic and tissue compatible,
- Clinically Tested*
- 18 month 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

ly and at dressing changes to remove debris. Using increased intermittent pressure to deliver the water or saline solution is acceptable.

Dressings

WHS recommendations are to consider patient activity, wound location, and peri-wound skin quality when choosing a dressing that:

- sustains a moist wound environment (for example, a continuously moist saline gauze dressing), which promotes cell migration, matrix formation, and debridement and helps reduce CVLU-associated pain.
- diminishes wound exudate and therefore protects skin around the CVLU from maceration.
- is cost effective (factor in clinician time, application time, healing rate, and unit cost).
- remains in place, reduces shear and friction, and does not cause further tissue damage; adhesives are not required when using compression systems. (*Note:* This is the only level II recommendation; the others are level I.)

Another level I recommendation is to consider using adjuvant therapies (topical, device, or systemic) if there is no healing progression within 3 to 6 weeks of beginning a treatment plan.

Long-term maintenance

CVLUs are considered long-term problems because of their high recurrence rates, so long-term maintenance is required even after ulcers have healed.

WHS guidelines for long-term maintenance and prevention of CVLUs state that patients:

- with healed CVLUs should wear compression stockings continually and indefinitely to help reduce venous hypertension—the underlying cause of CVLUs. (Level I recommendation.)
- should perform exercises that increase calf muscle pump function on a regular basis. (Level III recommendation.)

A patient-centered care plan developed by a multidisciplinary team that includes evidence-based treatment strategies for CVLUs will produce the best possible healing outcomes and help prevent recurrences of these recalcitrant wounds. ■

Jodi McDaniel is an associate professor and director of the Honors Program at The Ohio State University, Columbus, Ohio.

Selected references

Alavi A, Sibbald RG, Phillips TJ, et al. What's new: Management of venous leg ulcers: treating venous leg ulcers. *J Am Acad Dermatol.* 2016;74(4):643-64; quiz 665-6.

Ashby RL, Gabe R, Ali S, et al. Clinical and cost-effectiveness of compression hosiery versus compression bandages in treatment of venous leg ulcers (Venous leg Ulcer Study IV, VenUS IV): a randomised controlled trial. *Lancet.* 2014;383(9920):871-9.

Beidler S, Douillet C, Berndt D, et al. Inflammatory cytokine levels in chronic venous insufficiency ulcer tissue before and after compression therapy. *J Vasc Surg.* 2009;49(4):1013-20.

Bergan JJ, Pascarella L, Schmid-Schonbein GW. Pathogenesis of primary chronic venous disease: insights from animal models of venous hypertension. *J Vasc Surg.* 2008;47(1):183-92.

Marola S, Ferrarese A, Solej M, et al. Management of venous ulcers: state of the art. [published online ahead of print June 21, 2016]. *Int J Surg.* doi:10.1016/j.ijsu.2016.06.015.

Marston W, Tang J, Kirsner RS, et al. Wound Healing Society 2015 update on guidelines for venous ulcers. *Wound Repair Regen.* 2016;24(1):136-44.

Raffetto JD. Dermal pathology, cellular biology, and inflammation in chronic venous disease. *Thromb Res.* 2009;123(Supplement 4):S66-S71.

Rice JB, Desai U, Cummings AK, et al. Burden of venous leg ulcers in the United States. *J Med Econ.* 2014;17(5):347-56.

Antibiotic use in pressure injury infections

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

Antibiotic overuse contributes to the problems of antibiotic resistance and healthcare acquired infections, such as *Clostridium difficile*. Antibiotic stewardship programs improve patient outcomes, reduce antimicrobial resistance, and save money. These programs are designed to ensure patients receive the right antibiotic, at the right dose, at the right time, and for the right duration.

Clinicians need to understand the proper role of antibiotics in patients with pressure injuries (PIs) so optimal benefits are achieved. Here are a few considerations to keep in mind.

First steps

Before starting an antibiotic, culture the PI and use the results to choose the appropriate drug. Debride devitalized tissue to decrease bacterial growth. Support the patient by addressing nutritional deficits, stabilizing glycemic control, improving arterial blood flow, and reducing immunosuppressant therapy, if possible. These actions will enhance antibiotic response and wound healing.

Role of antiseptics

Antiseptics are agents that inhibit or destroy the development and growth of microorganisms in or on living tissue. These agents have multiple targets and a broad spectrum of activity that includes bacteria, fungi, viruses, protozoa, and even prions.

Antiseptics may be considered when PIs are not expected to heal, but clinicians want to control bacterial bioburden. Consider nontoxic topical antiseptics at the appropriate strength for a limited time until bioburden is controlled.

Commonly used antiseptics for PIs are iodine compounds (slow-release cadexomer iodine); silver compounds, including silver sulfadiazine; polyhexanide and polyaminopropyl biguanide; chlorhexidine; sodium hypochlorite; and acetic acid. Discontinue the antiseptic once the PI is clean and the surrounding inflammation is reduced.

Role of topical antibiotics

The use of topical antibiotics for a locally infected PI is limited because of side effects, resistance, and hypersensitivity reactions. However, a short (2-week) course of topical antibiotics may be considered in the following situations:

- The PI is not healing despite proper wound management.
- The PI appears clean, but continues to have a bacterial bioburden. After the bioburden has decreased, discontinue the topical antibiotic.

Silver and honey dressings are an option for PIs infected with multiple organisms because they offer broad antimicrobial coverage. Silver sulfadiazine may be helpful for heavily contaminated or infected PIs.

Ensure the patient is not allergic to honey or has silver or sulfur sensitivities. Silver may has toxic properties, so limit the length of time it's used.

Role of systemic antibiotics

Systemic antibiotics are indicated for managing PIs with evidence of systemic infection, such as positive blood cultures, sys-

temic inflammatory response syndrome, sepsis, advancing cellulitis, fasciitis, or osteomyelitis. In the presence of ischemic tissue, topical antibiotics may be used in conjunction with systemic antibiotics.

Unlike topically applied agents, systemic antibiotics can reach the base of the infected tissue. Antibiotics should be chosen based on confirmed antibiotic susceptibilities of the known pathogens. For life-threatening infections, empiric antibiotics should be based on local antimicrobial susceptibility patterns and reevaluated when definitive cultures become available.

Grossly infected or abscessed PIs should be drained and debrided to treat related sepsis or advancing cellulitis before starting systemic antibiotics.

Appropriate intervention

Infected PIs can lead to sepsis. If used appropriately, antiseptics and antibiotics can help reduce the risk of sepsis and antibiotic resistance. ■

Jeri Lundgren is the president of Senior Providers Resource in Cape Coral, Florida. She can be contacted at jeri@seniorprovidersresource.com.

Selected references

Centers for Disease Control and Prevention. Why Inpatient Stewardship?. 2010. http://www.cdc.gov/getsmart/healthcare/inpatient-stewardship.html

National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Ulcer Injury Alliance. *Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline*. Emily Haesler, ed. Osborne Park, Western Australia: Cambridge Media; 2014.

Wound Ostomy and Continence Nurses Society. *Guideline for Prevention and Management of Pressure Ulcers (Injuries)*. Mount Laurel, NJ: Wound, Ostomy, and Continence Nurses Society; 2016.

Apple BITES

Dose from WCEI

WOUND CARE EDUCATION INSTITUTE®

Ostomy documentation tips

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

In each issue of *Wound Care Advisor,* Apple Bites brings you a tool you can apply in your daily practice. In this issue, we'll focus on documenting ostomy care.

General characteristics

- Document if the diversion is an intestinal or urinary ostomy, whether it's temporary or permanent, and the location—abdominal quadrant, skin fold, umbilicus. (See *Descriptor reference.*)
- Describe the type of ostomy:
  - colostomy (colon)—sigmoid or descending colostomy, transverse colostomy, loop colostomy, ascending colostomy
  - ileostomy (small bowel)—ileoanal reservoir (J-pouch), continent ileostomy (Kock pouch)
  - urostomy (bladder)—continent urostomy, Indiana pouch, orthotopic neobladder.
- Document the presence and location of bowel sounds.

Stoma information

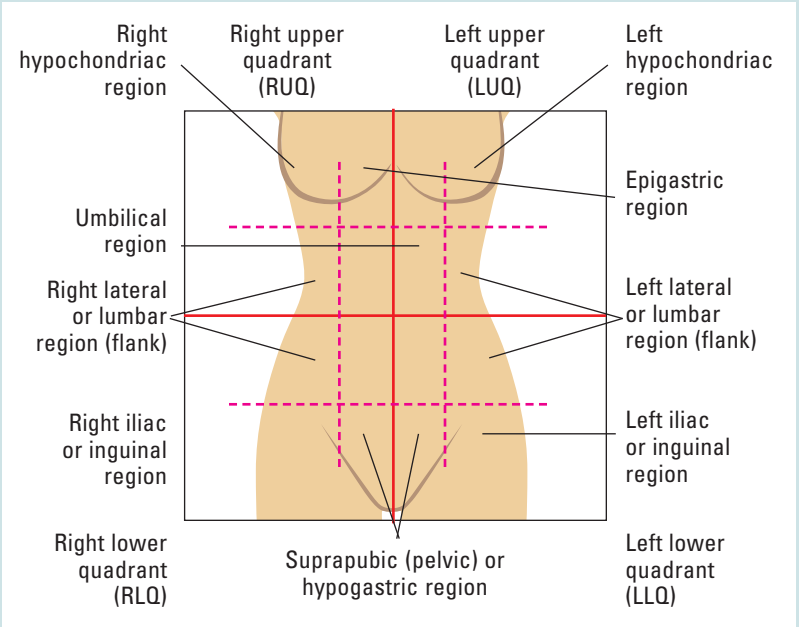
- Note the type:
  - loop (two openings through one stoma)
  - end (one stoma)
  - double barrel (two distinct stomas).
- Document the overall appearance (shiny, taut, edematous, dry, moist, pale, textured, smooth, bloody) and the presence of stents, rods, drains (include type and location).
- Describe the color (red, beefy red, pink, pale pink, purple, blue, black) and shape (round, oval, budded).
- Note the height:
  - flush—at skin level
  - prolapsed—telescoped out from the abdominal surface.
- Document the size in millimeters:
  - Round stomas are measured by diameter.
  - Oval stomas are measured by widest length and width.
- Describe the lumen:
  - location—straight up, side, level with skin, or centrally located
  - number of lumens, stenosis, or stricture.
  - *Note:* Document the location of the lumen by using the clock system, with the patient's head at 12:00.
- Describe the odor—presence or absence of odor, strong, foul, pungent, fecal, musty, sweet.
- Note whether the stoma and peristomal skin junction is intact or separated.

Effluent

For a fecal stoma, describe the amount, consistency, and overall appearance of effluent—thick, viscous, liquid, pasty, oily, formed, soft, thin, tarry.

Descriptor reference

It's important to be precise in describing locations. The image below identifies terminology you can use; directional information is located to the right.



Fixed anatomical directions
Superior – up
Inferior – down
Anterior – front
Posterior – back
Medial – towards middle
Lateral – away from middle

Directions attached to specimen
Cephal – towards head
Caudal – towards tail
Ventral – towards belly
Dorsal – towards back

Specialized directions for limbs
Proximal – towards body
Distal – away from body

For a urinary diversion, describe urine characteristics, volume, presence of odor (musty, fishy, fecal, acid), color (clear, cloudy, amber, straw, colored, blood tinged), and presence of substances other than fluid (grit, crystals, mucous strands).

Peristomal skin

- Describe the characteristics of peristomal skin—color, edema, firmness, intactness, induration, pallor, lesions, texture, scar, incision, rash, staining, moisture.
- Assess a minimum of 2 inches out from around the stoma.

Appliance and accessories

- Document the type of ostomy appliance and accessories. Include the pouching system product, size, and product number. Note the presence of a spout, the convexity, and whether it's a one-piece or two-piece system,
- Observe and document proper function and adhesion, and complications experienced with appliance systems. Document any modifications to the care plan, implementation of new orders, and referrals.

Other important information

- Document pain—location, causative factors, intensity, quality, duration, alleviating factors, patterns, variations, interventions.
- Note stoma or peristomal skin complications—mucocutaneous separation, stenosis, necrosis, bleeding, dermatitis, folliculitis, peristomal hernia, caput medusae, peristomal hyperplasia, pseudoverrucous lesions, allergic dermatitis, contact dermatitis, pouch leakage, infection.
- Document patient and caregiver education—topics covered, level of understanding, and education materials distributed. ■

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.

Frequently asked questions about support surfaces

Support surfaces are a valuable tool in preventing pressure injuries. Here are answers to some commonly asked questions about them.

By Armi S. Earlam, DNP, MPA, BSN, RN, CWOCN

The National Pressure Ulcer Advisory Panel (NPUAP) describes support surfaces as "specialized devices for pressure redistribution designed for management of tissue loads, microclimate, and/or other therapeutic functions." These devices include specialized mattresses, mattress overlays, chair cushions, and pads used on transport stretchers, operating room (OR) tables, examination or procedure tables, and gurneys. Some support surfaces are part of an integrated bed system, which combines the bed frame and support surface into a single unit.

Support surfaces must be used in conjunction with other interventions, such as nutritional support, skin care, repositioning, pressure redistribution, risk identification, and patient and caregiver education. Although studies have shown that support surfaces can help decrease the incidence of pressure injuries (PIs), there is no evidence showing one brand or type of support surface is better than another.

What does it mean when a support surface is described as reactive or active?

Reactive surfaces, also called reactive/continuous low pressure, may be powered or not powered and can adjust pressure redistribution only when a load (such as the weight of a patient) is applied to it.

An active surface is always powered. Pressure distribution is adjusted mechanically, even when there is no patient on the surface.

What materials are used in support surfaces?

Materials include foam, gel, fluid, and silicone beads. Australian medical-grade sheepskin is also used, but has limited availability in the United States. Some support surfaces have covers made of Gore-Tex® or another material that helps reduce friction.

What do the terms immersion, envelopment, and bottoming out mean?

Pressure redistribution with support surfaces is achieved through immersion and envelopment.

Immersion refers to the fact that as the body sinks into the surface, pressure is redistributed over the entire area of contact and not just the bony prominences. *Envelopment* is the ability of the support surface to conform evenly to irregularities, such as body contours, linens, and the patient's

clothing, without causing excessive pressure on the body.

Bottoming out refers to the patient's body sinking in so deeply on the support surface that it rests against the bed frame or another surface, such as a gurney, that lacks sufficient cushioning.

What is microclimate control?

Microclimate control (control of temperature and moisture) is achieved by:

- controlling the airflow against the skin by pumping air through minute perforations in the surface cover
- increasing the exchange of air between the skin and the surface through the use of porous covers that allow moisture evaporation and body heat dissipation.

This feature keeps the skin cool and dry.

Microclimate control is beneficial for patients who are constantly moist (for example, diaphoretic or incontinent). Excess moisture raises the risk of friction and shear, which can result in skin breakdown. The coolness feature helps avoid higher skin temperature, a risk factor for PIs.

What do the features lateral rotation, alternating pressure, low air loss, and air fluidized mean?

These features are the functional or therapeutic components of a support surface. They can be used singly or in combination.

With continuous lateral rotation, or simply *lateral rotation*, the surface provides rotation longitudinally (head-to-toe), turning the patient to a set degree, in a set duration, and at a set frequency. Rotation is limited to 40 degrees or less to each side. Lateral rotation does not replace repositioning the patient to address skin issues, nor does it provide pressure redistribution or offloading. Instead, surfaces with this feature help facilitate pulmonary hygiene among patients with acute respiratory conditions.

NPUAP defines *alternating pressure* as "a feature of a support surface that provides pressure redistribution via cyclic changes in loading and unloading as characterized by frequency, duration, amplitude, and rate of change parameters." Surfaces with alternating pressure may be mattresses or overlays and are always powered. They can change distribution of load with or without applied load—even when no patient is in the bed. These surfaces have air cells that cyclically inflate and deflate, thus changing the areas of the body under pressure.

Low air loss means that the surface provides flow of air to help manage the microclimate of the patient's skin.

Air-fluidized surfaces provide pressure redistribution by immersion and envelopment, using a fluid-like medium created by forcing air through silicone beads. Air-fluidized surfaces are expensive and difficult to maintain; beds with these surfaces are usually rented instead of purchased. They are heavier than a standard bed, so are not always suitable to place in older homes.

Air-fluidized beds are often used for patients with multiple full-thickness wounds or who have undergone myocutaneous procedures. They are not typically recommended for a patient with an unstable spine or pulmonary disease. The fluid-like surface doesn't provide sufficient support for a patient with an unstable spine, and for patients with pulmonary disease, the lack of firm support makes it difficult for patients to cough effectively.

What are general considerations for matching patients to appropriate support surfaces?

It's important to base the choice of support surface on individual patient needs. (See *Determining type of support surface*.) For example, consider the patient's weight, height, and shape. (Bariatric patients must use bariatric surfaces; be aware of the weight limitation of the surfaces.)

Other considerations include:

- risk for new PIs
- number of current PIs, including severity

Simpurity™

Safe n Simple WOUNDCARE

Promoting Healthier Lives with Proven Outcomes

Safe n Simple focuses on product quality, patient safety, and cost containment. With the introduction of the Simpurity Wound Care product line we are proud to offer wound care products that follow evidence based medicine, facilitate moist wound healing and improve patient outcomes while lowering costs.

Your patients deserve the best care available, with the proven quality of Simpurity wound care product solutions, you can help them achieve greater outcomes and save money doing it.

Simpurity Wound Care Solutions:

- Collagen - Dressing Pads & Powder
- Alginate - Dressing Pads & Rope
- Silver Alginate - Dressing Pads & Rope
- Hydrocolloid Dressing Pads
- Hydrogel Dressing Pads
- Dermapro Tape
- Foam - Non-Bordered Dressing Pads
- Foam - Adhesive Bordered Dressing Pads
- Foam - Silicone Adhesive Dressing Pads
- Foam - Silver Dressing Pads
- Polymer Pad Dressing

For more information or to request samples please call our toll-free number or visit our website.

844-767-6334 | www.SnS-Medical.com

Affordable products covered by insurance.

Determining type of support surface

The Wound, Ostomy and Continence Nurses Society developed an evidence- and consensus-based support surface algorithm, which is available at http://algorithm.wocn.org/#home. The algorithm notes that patients with large, or multiple stage 2, 3, or 4 pressure injuries on the trunk or pelvis involving more than one turning surface should be placed on a support surface with a low air loss or an air-fluidized feature. The algorithm also suggests that among patients with Braden moisture subscale scores of 2 or 1 (very moist or constantly moist), surfaces with a low air loss feature should be considered.

and location
- patient's activity, mobility (for example, avoid surfaces that might make it difficult to get a patient out of bed), and moisture
- risk for falls and entrapment in the bed
- appropriateness for the setting (for example, powered surfaces can't be used in a home without a reliable power source).

Consider contraindications when choosing a support surface. For example, reactive/constant low pressure, reactive/constant low pressure with low air loss, active surfaces with alternating pressure feature, and air-fluidized surfaces are contraindicated for patients with unstable cervical, thoracic, and lumbar spines, and patients with cervical or skeletal traction.

Assess the appropriateness of the choice on a regular basis. For example, a patient with multiple stage 3 PIs that have healed may no longer need the surface with low air loss but can now be placed on a reactive/constant low pressure surface. If a patient experiences pain or discomfort with a particular surface, consider alternatives.

What are important points to remember when using support surfaces?

Education is key to promote optimal use of these surfaces. Staff such as nurses, certified nursing assistants, and other team members who handle the surfaces, including housekeeping and maintenance staff, all need information on how to use the support surface correctly. Education should extend to families, caregivers, and patients in the home setting.

Although the manufacturer may state an expected lifespan for a product, staff must be taught that the lifespan can be shorter, depending on use. Staff need to be aware of indicators of wear and tear; discoloration; any change in height or thickness of the surface; any break in the seams, cover, zippers, flaps; breakdown of internal components; or presence of foul odor. Deficient products must be repaired or replaced.

Other important points related to using support surfaces include the following:
- Ensure the appropriate type and number of linens or liners are used with the surfaces. For example, a liner with a plastic bottom is not ideal with low air loss surfaces because the non-breathable feature of the plastic will not allow the air from the support surface to go through.
- Clean surfaces as specified by the manufacturers. If the correct cleaning process is not used, the surface poses an infection risk. Incorrect use of agents, for example using products that destroy the integrity of the cover, also increases the risk of cross-infection.

Most importantly, remember that patients must still be repositioned even if they are in a support surface. An active support surface should be used when frequent manual repositioning is not possible. When possible, avoid positioning a patient with an existing PI on the affected area.

What should facilities use as support surfaces in the OR, ED, and procedure areas?

Support surface options for the OR include air, gel, and high-specification foam mattresses. Consider the patient position re-

quired for the procedure when making a selection. There are also pads with pressure redistribution properties that can be used for transport and on ED beds. More research is needed to determine the effectiveness and proper use of these support surfaces. When selecting products to use in these special situations, consider safety, care, and costs.

Understanding support surfaces

Support surfaces are an integral part of PI prevention and treatment. When selecting a surface, the patient's individual needs, including past experiences with the surfaces, must be taken into consideration. It's important for clinicians to continuously assess patients for the appropriateness and the functionality of the surface. ■

Armi S. Earlam is the lead certified wound, ostomy, and continence nurse at Lutheran Medical Center in Wheat Ridge, Colorado.

Selected references

Centers for Medicare and Medicaid Services. National Coverage Determination (NCD) for air-fluidized bed (280.8). cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=228&ncdver=1&bc=AAAAgAAAAAAA&.

Mackey D, Watts C. Therapeutic surfaces for bed and chair. In Doughty D, McNichol L, eds. *Core Curriculum: Wound Management*. Philadelphia, PA: Wolster Klower; 2016:362-83.

McNichol L, Watts C, Mackey D, et al. Identifying the right surface for the right patient at the right time: generation and content validation of an algorithm for support surface selection. *J Wound Ostomy Continence Nurs*. 2015;42(1):19-37.

Moore Z, Stephen Haynes J, Callaghan R. Prevention and management of pressure ulcers: support surfaces. *Br J Nurs*. 2014;23(6):S36-S43.

National Pressure Advisory Panel. Terms and definitions related to support surfaces.npuap.org/wp-content/uploads/2012/03/NPUAP_S3I_TD.pdf. 2007.

National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel, & Pan Pacific Pressure Injury Alliance. Prevention and treatment of pressure ulcers: clinical practice guidelines. Osborne Park, Australia: Cambridge Media; 2014.

Save the Date

Experience what wound care education is all about.

Wild on Wounds™ (WOW) is the national wound conference designed for healthcare professionals that are interested in enhancing their knowledge in skin and wound management. Clinicians come from all over the US to see, touch and participate in our hands-on workshops. Join us and learn about all the new and advanced wound care treatments and technologies to better help care for your patients.

WOW
WILD ON WOUNDS℠
National Conference

2017

Rio All-Suite Hotel & Casino Las Vegas

October 4-7, 2017 | www.woundseminar.com

Attend WOW for Free!

Wound, Diabetic & Ostomy Certification Course.

Attend one of these certification courses offered in Las Vegas the week of October 2, 2017 and get a **FREE ticket to the Wild On Wounds Conference!**

WCC® WOUND CARE CERTIFIED

This Wound Care Certified (WCC®) course offers and an evidence-based approach to wound management with current standards of care practices to keep clinicians legally defensible at bedside.

DWC® DIABETIC WOUND CERTIFIED

This Diabetic Wound Certified (DWC®) course takes you through the science of the disease process, focuses on limb salvage and prevention, and covers the unique needs of a diabetic patient. This course is taught by a board certified DWC physician who is passionate about caring for diabetic patients.

OMS® OSTOMY MANAGEMENT SPECIALIST®

This Ostomy Management Specialist (OMS) course will take you through the anatomy and physiology of the systems involved in fecal/urinary diversions. The course includes online pre-class modules followed by hands-on classroom sessions.

www.wcei.net | 1-888-318-8536

Wound Care Education Institute®

What the mirror doesn't tell you

The amazing work and wonder within you

By Tracey Long, PhD, RN, MS, MSN, CDE, CNE, CHUC, CCRN

"I hate my body." "I'm such a fat, worthless cow." "Where did all these gray hairs and wrinkles come from?" "I have total thunder thighs." "How could anyone find me attractive when I look like this?" "My body is such a burden."

If you're like 97% of the American population, you've probably had thoughts like these at some point. According to a survey by *Glamour* magazine 30 years ago and updated in 2014, 54% of women are unhappy with their body and 80% claim the mirror makes them feel bad about themselves. Unhappiness about body image has been reported in girls as young as age 6. Even men admit to body-image angst; from 1997 to 2001, the number of men who had cosmetic surgery increased 256%. Clearly, we need to evaluate the messages the mirror is telling us. (See *Campaigning for real beauty*.)

Mirror, mirror, on the wall

Although many of us rely on the messages in the mirror as the absolute truth, we need to be aware of the inherent distortions it may hold. Ever since 8,000 B.C., when the mirror made its first appearance, people have been evaluating their personal worth based on their physical appearance. Two opposite attitudes exist: Some people are fixated by their own faces, as shown by an obsession with "selfies." Others declare their body hatred throughout the day.

We have a love-hate relationship with the mirror—but the mirror may not always tell the truth. People with anorexia nervosa see a distorted view in the mirror; some view themselves as fat even though they're scarily thin. The mere act of focusing on something, such as a nose or a mole, may make it look larger in the mirror. Even your mood may affect the way you see yourself. When you're tired, angry, or anxious, the mirror may reflect your emotions more than your true physical image.

Campaigning for real beauty

In 2004, Dove® commissioned a global study, called The Real Truth about Beauty, to further global understanding of women, beauty, and well-being—and the relationships among them. The study found only 2% of women would describe themselves as beautiful.

Subsequently, Dove launched its Campaign for Real Beauty, which triggered a global discussion about the need to define beauty more broadly. It uses various vehicles, including media messages, partnerships, and training with the Girl Scouts of America and Boys and Girls Clubs, to promote awareness and education for women and girls of all ages. Its video "**Evolution**[A]" shows how professional makeup artists, photo enhancement, and computer manipulation can make an average-looking woman look beautiful.

Amazing body facts the mirror doesn't tell you

The more you know about your body, the more you can appreciate it.

- The 60,000 miles of blood vessels inside the average adult are enough to travel around the earth 2.5 times.
- Nerve impulses travel 250 miles per hour.
- The body contains 70 octillion atoms—23 times more than the 300 billion stars in our galaxy.
- The combined hair of a human's head can support the weight of two elephants.
- Human bone is as strong as granite and concrete. A block of bone the size of a matchbox can support 9 tons.
- The human brain can perform 38 thousand trillion operations per second, compared to the 92 trillion performed by the world's most powerful supercomputer.
- Your body creates 7 miles of new blood vessels for every pound of fat or muscle you gain to perfuse it.
- Each second, 25 million new body cells are created.
- Your outer skin is replaced every month.
- Besides the classic five senses, you also have a sense of balance, temperature, pain, emotions, air, hunger, thirst, and fullness.
- A red blood cell can travel throughout your whole body in 20 seconds.
- The surface of one lung's capillaries is as large as one side of a tennis court.
- Your body makes about 1.5 L of saliva each day.

What the mirror tells you

Relying on the mirror to tell you "who is the fairest of them all" may not give you the honest truth. But despite potentially negative messages people get from the mirror, it can provide helpful information. It can tell you a lot about the outside and the inside of your body. Although we focus on our exterior image, the mirror offers clues to the internal health of your body.

Using your critical thinking assessment skills, take an objective look at your skin and hair. The skin, the body's largest organ, can provide feedback on your sleep (or lack thereof) and nutrition. Without adequate vitamin intake or sun, your skin may look pale and flaccid; without adequate essential fatty acids, it may be dull or dry. Stress, overwork, and lack of purpose in your life may reflect in the eyes that stare back at you. Your hair texture and natural color also can hint at the state of your nutrition, exercise, and rest.

What the mirror doesn't tell you

The mirror doesn't tell you about the amazing functions of your body systems, or that you and your body are the most brilliant creations in the universe. As Shakespeare's Hamlet exclaimed, "What a piece of work is man! How noble in reason, how infinite in faculty! In form and moving how express and admirable!"

Your endocrine system, for instance, is an amazing creation of numerous autonomic functions working through a negative feedback loop of chemicals to regulate many systems. It also balances your energy levels through the thyroid gland. And when is the last time your thanked your adrenal glands for helping regulate your blood pressure via cortisol and aldosterone?

Thanks to auto-regulation, your body can keep its temperature within the same general range even when the environment around it changes constantly. Breathing is controlled by tissues in your carotid arteries that track carbon dioxide (CO_2) concentration and send messages to the brain's respiratory center. Your body breathes faster or slower to eliminate CO_2 as needed, all without your conscious awareness.

Your pancreas produces both insulin and glucagon, which naturally oppose each other but work in harmony to balance blood glucose levels. These levels affect the func-

Learning to love your reflection

Here are some ways to change what you see in the mirror.

- When looking in the mirror, focus on what you love.
- Stop comparing yourself to the celebrities you see in fake airbrushed photos.
- Look past your face and hair so you can pick up on health cues.
- Honor your body by giving it some TLC.
- Take time to care for your body.
- Be grateful for your body systems that are working well.
- Pay compliments to your internal organs.
- Focus on your energy level, not your weight.

tion of all three trillion cells in your body. Your glucose level rises in the morning to awaken you and give your cells energy to start the day automatically. Somatostatin regulates the endocrine system, balancing insulin and glucagon to work in complete balance without your attention.

The mirror doesn't tell you how well your liver detoxifies drugs and chemicals and maintains your blood glucose level when you're asleep. Nor does it reveal that your immune system constantly monitors and patrols your blood for foreign pathogens, which it then kills through a complex chemical cascade. Does it tell you that your spleen has been working hard to store white blood cells and recycle red blood cells?

What the mirror doesn't tell you about your magnificent self is far more interesting and exciting than the cellulite you may glimpse in your reflection. It doesn't let on that your body has innate abilities, such as auto-regulation, self-defense, and self-healing. Even the guy who cut you off on the freeway yesterday has an amazing physical orchestra playing within him. (See *Amazing body facts the mirror doesn't tell you.*)

The clinician reflection

Ironically, some clinicians who care for sick patients and help promote health and healing are unhealthy themselves. For example, research shows that occupational stress, poor coping behaviors, and lack of support cause anxiety and depression in nurses. The longitudinal Nurses Health Study, which began in 1988, examines relationships among hormone replacement therapy, diet, exercise, and other lifestyle practices and chronic illnesses. It found female nurses' health was no better than that of the general populace. Ideally, clinicians' health should mirror their knowledge about the human body, health, and illness. Unfortunately, knowledge alone doesn't create vibrant health. We should sing along with the Disney character Mulan, who asks, "When will my reflection show who I truly am?"

As clinicians, we can do better to reflect the true inner beauty of our bodies—and project that beauty in our lifestyles. Balancing the mirror's messages is the key. What the mirror doesn't tell you can inspire you to honor your body. What it does tell you can motivate you to care for yourself so you can better model healthy behaviors for patients.

Fixing the mirror's reflection

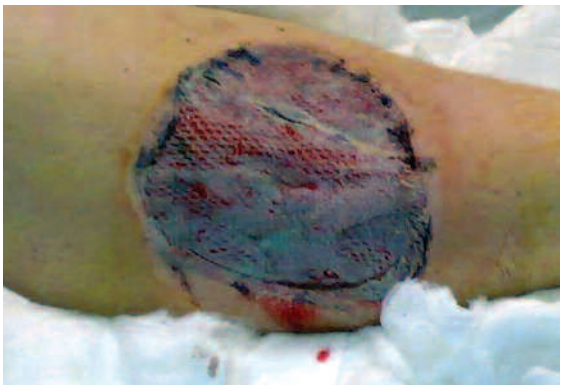
In our society of quick fixes and limited warranties, it's easy—and often necessary—to replace just about everything. We can replace most material objects when they're worn out. The only thing that can't be replaced is the human body. We can misuse and abuse it, or treat it with loving care. (See *Learning to love your reflection.*)

Despite the wondrous advances of medical science (and plastic surgery), your

body is still your very essence. Although it comes with a lifetime warranty, its quality isn't guaranteed; that's up to you.

So what does your mirror say to you? And will you listen? ■

Tracey Long is a professor of nursing for Kaplan University and International Service Learning in Las Vegas, Nevada. As an identical twin, she sometimes uses her twin sister as her mirror.



Skin substitutes: Understanding product differences

Choosing the right product can prove critical to patient care—and to staff resources in a busy clinic.

By Myra Varnado, BS, RN, CWOCN

Skin substitutes (also called tissue-based products and dermal replacements) are a boon to chronic wound management when traditional therapies have failed. When selecting skin substitutes for their formularies, wound care professionals have many product options—and many decisions to make.

Repair of skin defects has been a pressing concern for centuries. As early as the 15th century BC, Egyptian physicians chronicled procedures and herbal treatments to heal wounds, including xenografts (skin from another species). The practice of applying allografts (human cadaver skin) to wounds was first documented in 1503. In 1871, autologous skin grafting (skin harvested from the the person with the wound) was tried. Next came epithelial-cell seeding, which involves scraping off the superficial epithelium of healthy skin and transplanting the cells onto the wound.

Today, skin grafting and seeding techniques are used successfully for treating wounds. Autologous grafts are the optimal choice for wound coverage. But availability of skin for harvesting may be limited, particularly in cases of large burns. Also, autograft procedures are invasive and painful.

Allografts and xenografts (for instance, porcine or bovine grafts) may be used as temporary skin replacements. Typically, though, these are later covered by an autograft. Also, they have significant clinical limitations, including immune rejection with allogeneic grafts (grafts from donors who are genetically different from the recipient but of the same species), as well as pain, scarring, slow healing, and infection.

Bioengineered skin substitutes

Bioengineered skin substitutes were created to eliminate certain problems with skin grafts. They're used to treat non-healing wounds and for soft-tissue grafts in patients with life-threatening full-thickness (third-degree) or deep partial–thickness (second-degree) burns, surgical wounds, diabetic foot

ulcers, venous ulcers, and certain other conditions, including epidermolysis bullosa. (See *Skin substitutes for chronic wounds.*)

Bioengineered skin substitutes contain live human cells that are seeded onto a matrix and provided with the proteins and growth factors needed to grow and multiply into the desired tissue. Various biosynthetic and tissue-engineered human skin equivalents are manufactured under an array of trade names and marketed for various purposes. Because these products are procured, produced, manufactured, or processed in different ways, they can't be evaluated as equivalent.

Bioengineered skin substitutes fall into five classifications:

- cultured epithelial autografts
- human skin allografts derived from donated human cadaver tissue
- allogenic matrices derived from human neonatal fibroblasts
- composite matrices derived from human keratinocytes, fibroblasts, and bovine or porcine collagen
- acellular matrices derived from porcine or bovine collagen.

Some skin substitutes also possess unique regenerative properties. For instance, an allograft made of amniotic membrane and umbilical cord (NEOX®, made by Amniox Medical) exhibits the same biology responsible for propagating fetal regenerative and scarless wound healing. When transplanted into the adult wound environment, these placental tissues modulate inflammation and promote healing.

In a 2016 study of 32 diabetic foot ulcers by Raphael, an average of 1.68 NEOX applications resulted in a healing rate of 87.5%. A 2016 study by Caputo et al found that an amniotic membrane/umbilical cord allograft proved effective in treating complex diabetic foot ulcers with osteomyelitis; patients had a 78.8% healing rate after an average of 1.2 applications. In contrast, a 2002 study by Margolis et al found that only 32% of diabetic foot ulcers healed within 20 weeks of standard-of-care therapy (debridement, dressings, and topical ointment).

Skin substitutes for chronic wounds

Typically, chronic wounds (those that don't respond to initial treatment despite appropriate care) require advanced wound-healing interventions. A wound is considered chronic if it resists healing after 4 to 12 weeks of treatment, depending on wound type. The most common examples of chronic wounds are those with complicated etiologies, such as diabetic foot ulcers, venous leg ulcers, pressure injuries, and surgical wounds. Diabetic foot ulcers, venous leg ulcers, burns, and pressure injuries are most commonly treated with a tissue-based product.

Choosing skin substitutes

Efficacy of skin substitutes varies widely in terms of the number of applications needed to close a wound, healing rates, and healing times. Dehydrated amniotic skin substitutes are convenient to store and use, but are less potent than cryopreserved amniotic/umbilical cord skin substitutes, which better preserve the structure and key biological signaling of fetal tissues to quickly promote revascularization in the adult wound bed. Choosing the skin substitute to match the desired clinical outcome is crucial. In addition, Medicare coverage varies considerably by region. (See *How Medicare reimburses for skin substitutes.*)

Ease of use and storage

Some skin substitutes require more maintenance than others, potentially leading to product waste if storage conditions aren't

How Medicare reimburses for skin substitutes

Wound centers need to select efficacious and cost-effective skin substitutes that are reimbursable. The Medicare Local Coverage Determination (LCD) for each region determines which skin substitutes Medicare reimburses for, as well as the criteria patients must meet for the skin substitute to be applied. When I was chief nursing officer for a company with many wound centers across the United States, I dealt with multiple LCDs, each with different requirements for applying skin substitutes. One LCD might allow a particular skin substitute to be applied anywhere on the body, while another limited that product to the foot. In determining which advanced tissue products to place on the formulary for our wound centers, we chose those with the widest applicability to the most patients.

optimal. For example, tissue-based products containing live cells have stringent shipping and application requirements; they're shipped on dry ice and the patient must receive the graft within hours after the product arrives at the wound center. During an ice storm in Dallas, a truck delivering a tissue-based skin substitute for one of our patients had to wait out the storm on the side of the road; the patient cancelled his appointment due to impassable roads. By the time the patient rescheduled and the truck arrived with the skin substitute, the product was no longer usable and had to be thrown out.

In contrast, a skin substitute that remains stable in a wound center's refrigeration unit is available when the patient needs it, so treatment can start sooner than with a product that has a narrow window for use. For instance, NEOX can be refrigerated safely at temperatures ranging from -112° to 39° F (-80° to 3.8° C) for up to 2 years without structural or functional compromise. If the product isn't opened, it can be exposed to room temperatures of 68° to 77° F (20° to 25° C) for up to 6 hours and safely returned to cold storage. NEOX is the only cryopreserved amniotic membrane product that doesn't need to be stored in a deep freezer.

Also, skin substitutes that require extensive preparation consume precious staff resources. One product, for example, needs to be washed in water at a temperature not exceeding 43° F (6.1 °C) before it can be applied to a patient's wound. This requires an extraordinary effort for personnel in a busy wound clinic. Skin substitutes that can be exposed to room temperature before use are much more convenient and eliminate the need for special equipment, such as thawing tubs.

Disadvantages of skin substitutes

As an advanced tissue treatment modality, skin substitutes are more expensive than conventional wound dressings and may have more complex storage and preparation requirements. To prevent waste, clinicians should choose a product that can be stocked in a range of sizes. Some substitutes are available only in small or very large sizes, which don't conform to most wounds; this means the wound center ends up paying for the excess product it must throw away.

Also consider how many times a skin substitute will need to be placed on a patient's wound before it closes. One that needs to be applied only twice is more cost effective than a less expensive one that requires multiple applications. ■

Myra Varnado is director of Clinical Wound and Ostomy Services for Corstrata, a national telemedicine company in Savannah, Georgia. Since 2000, she has been a member of the Wound Guidelines Task Force for the Wound, Ostomy and Continence Nurses Society (WOCN).

(continued on page 34)

Clinician RESOURCES

Here are a variety of resources for you to apply in your practice.

Pressure injury prevention in the OR

The perioperative environment can pose a risk for pressure injuries, particularly for patients who are older or undergoing lengthy procedures. The Association of PeriOperative Nurses developed a toolkit clinicians can use to help prevent injuries. The toolkit includes

- an educational slide program on patient positioning
- a sample pressure injury worksheet
- a sample checklist for preventing pressure injuries
- instructions on how to use the Munro Pressure Ulcer Risk Assessment Scale for Perioperative Patients (for adults)
- sample case studies.

Workforce violence prevention portal

You can access a wealth of information at the website portal **Workplace Violence Prevention Resources**[A] from The Joint Commission. The portal is dedicated to broadening awareness of the problem and providing information and resources, such as:

- slides from presentations
- past newsletters
- sample policies
- links to relevant resources from the federal government, states, and organizations
- how facilities are taking steps to prevent violence and responding effectively should it occur.

Influenza resources

Stay abreast of influenza activity in the United States at the Centers for Disease Control and Prevention (CDC) **website**[B]. Topics for clinicians include vaccination, antiviral drugs, infection prevention, and diagnostic testing.

You also can access free resources, such as fact sheets, posters, stickers, podcasts, and videos, to help educate your patients and the general public, and download an app so you can look up influenza content on your mobile device. The CDC recommends a yearly flu vaccine for everyone 6 months and older.

Opioid use disorder webinars

The American Psychiatric Nurses Associa-

tion is offering **free webinars**[C] on effective treatments for opioid use disorders. Target audiences include registered nurses and advanced practice nurses. The webinars are available for nursing education contact hours.

The Joint Commission and pressure injuries

Access an **advisory on preventing pressure**

injuries[D] from The Joint Commission. The advisory discusses the recent change in terminology and tips for prevention. ■

Online Resources

A. jointcommission.org/workplace_violence.aspx

B. cdc.gov/flu/index.htm

C. apna.org/i4a/pages/index.cfm?pageID=6088

D. https://www.jointcommission.org/assets/1/23/Quick_Safety_Issue_25_July_20161.PDF

(continued from page 32)

Varnado is a primary author of WOCN's guideline for management of wounds in patients with lower-extremity neuropathic disease. She is also a speaker and consultant for Amniox Medical, Inc., which markets the NEOX line of products.

Selected references

Amin N, Doupis J. Diabetic foot disease: from the evaluation of the "foot at risk" to the novel diabetic ulcer treatment modalities. *World J Diabetes*. 2016;7(7):153-64.

Calota DR, Nitescu C, Florescu IP, et al. Surgical management of extensive burns treatment using allografts. *J Med Life*. 2012;5(4):486-90.

Caputo WJ, Vaquero C, Monterosa, A et al. A retrospective study of cryopreserved umbilical cord as an adjunctive therapy to promote the healing of chronic, complex foot ulcers with underlying osteomyelitis. *Wound Repair Regen*. 2016;24(5):885-93.

Cooke M, Tan EK, Mandrycky C, et al. Comparison of cryopreserved amniotic membrane and umbilical cord tissue with dehydrated amniotic membrane/chorion tissue. *J Wound Care*. 2014;23(10):465-74, 476.

Doughty DB, McNichol LL, eds. *Wound, Ostomy and Continence Nurses Society® Core Curriculum: Wound Management*. Philadelphia, PA: Wound, Ostomy and Continence Nurses Society; 2015.

Halim AS, Khoo TL, Mohd, et al. Biologic and synthetic skin substitutes: an overview. *Indian J Plast Surg*. 2010;43(Suppl):S23-8.

Hill-Rom. 2016 International Pressure Ulcer Prevalence (IPUP) Survey. 2016. hill-rom.com/ipup/

Margolis DJ, Allen-Taylor L, Hoffstad O, et al. Diabetic neuropathic foot ulcers. *Diabetes Care*. 2002; 25(10):1835-9.

Nathoo R, Howe N, Cohen G. Skin substitutes: an overview of the key players in wound management. *J Clin Aesthet Dermatol*. 2014;7(10):44-8.

National Pressure Ulcer Advisory Panel. NPUAP Pressure Injury Stages. 2016. npuap.org/resources/educational-and-clinical-resources/npuap-pressure-injury-stages/

Raphael A. A single-centre, retrospective study of cryopreserved umbilical cord/amniotic membrane tissue for the treatment of diabetic foot ulcers. *J Wound Care*. 2016;25(Suppl 7):S10-7.

Online Resource

A. youtube.com/watch?v=iYhCn0jf46U

Note from Executive Director

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

National Alliance of Wound Care and Ostomy®

This is the final article in the series about certification. I'm not going to take up your time explaining or comparing the different wound certifications that exist. If you have taken the steps to further your education, enhance your knowledge, and obtain certification, then more than likely you have already performed your own due diligence about what's available. Instead, I want to write about the benefits and meaning of certification.

After going through years of schooling and extensive training to become a healthcare professional, you may become physically ill at the idea of attending more classes or training. You're definitely not the only one! As a clinician, you have experienced a grueling training period, so you may scoff at the idea of additional training to become certified. But there are significant benefits to taking this step—not just for you, but also for your patients and coworkers.

When you specialize in an area of health care, such as wound care, you become a unique asset to your employer. You are trained extensively, and your knowledge and resources can be used in very specific situations. As a certified healthcare professional, your knowledge and experience can make you difficult to replace, and your services become exceptionally valuable. Other additional personal benefits of certification include:

- improving earning potential
- expanding your opportunities for career advancement
- making yourself in demand, which means career moves to other locations may be easier to make
- providing leadership opportunities among your peers
- creating a sense of pride and accomplishment.

Completing certification also shows your employer that you're willing to go that extra mile to learn and contribute to the organization and to your patients. This speaks volumes about your commitment and the quality of your work.

Employers look for certified healthcare professionals because those individuals generally offer higher quality services. Many employers see you as a safe bet when you are certified. Those who are certified are much less likely to be involved in dangerous or unsafe clinical practice, which reduces legal risks for your employer. That not only makes the employer happy, it makes their insurance carrier happy as well.

Of course, your employer also can brag a little about your skills to their customers. Patients will feel safer and more comfortable knowing that they are in the hands of a certified healthcare professional. That could increase the number of patients who receive care at your healthcare facility, and keep them coming back—both things that your employer loves.

You receive specialty training and access to unique resources when you become certified. This knowledge helps you provide bet-

ter services to your patients. One of the major reasons that you became a clinician may have been because you love giving back to other people in need; certification offers you a unique way to give back that increases the quality of your services. Your patients can take comfort knowing that they are in your well-trained hands. Consider the following:

- You may be able to recognize potential problems before they happen and know how to prevent them.
- Certification provides you with up-to-date knowledge and skills that you may not have otherwise obtained.
- Studies indicate that the higher the number of certified nurses in an intensive care unit, the fewer serious injuries occurred that were only distantly related to the patient's condition (including falls and related injuries).
- Those certified in wound care score significantly higher in areas like classification of pressure injuries and specific wound closure procedures.

With more knowledge, you're simply able to provide better care to your patients, allowing them to recover faster and more fully. There is no better way to provide quality care than making sure your skills and knowledge are as complete and up to date as possible. Certification means a lot of things to a lot of people, so let me ask you this: What does certification mean to you? ■

New certificants

Below are WCC, DWC, and OMS certificants who were certified from July 2016 to September 2016.

Beverly Abcede
Victor Abdelsayed
Rhonda Accardo
Krystal Adams
Jennifer Adams
Cindy Adams
Kelly Ahrens
Rose Akamnonu
Carrie Albert
Ilene Alexander
Debora Allen
Amanda Almeida
Emilie Alonzo
Leonel Altema
Solomon Aluko
Betsy Alverson
Tammy Alverson
Antonio Ambrosio, Jr.
Marvia Anderson
Editha Andrada
Alexis Aningalan
Jeane Anthony
Yolanda Apedaile
Kimberly Archibald
Gabriela Arguello
Ashley Armenti
Wilma Arnold
Sharon Arvin
Sandra Astucuri
Trisha Atkinson
Colleen Aubry
Gina Auker
Rebecca Axe
Brent Babcock
Cherry Bailey
Milan Bajmoczi
Parmalee Baker
Aaron Ball
Sharon Baroni
Miriam Barretto
Deborah Bartmann
Summer Bates
Valerie Beck
Erin Bell
Marianne Bennett
Arlene Berdijo
Francesca Berriman
Sherry Berry
Annemarie Bianchetto
Jose Joey Bienvenida
Adrienne Biunno
Amy Blake
Shannon Blake
Natacha Blanchet
Melissa Blankenship
Elizabeth Blondeau
Karen Bondar
Karla Bonilla Carmona
Michael Bonner
Jeffrey Bopp
Meghan Boulmay-Cuevas
Cassandra Brader
Tammy Bradley
Lisa Bradley
Cari Branshaw
Lisa Bratton
Allison Braun
Jennifer Braunlich
Christina Brechtel
Aaron Bremner
Michelle Brewington
Sheila Brigoli
Mary Broemmelsick
Traci Brown
Megan Brown
Melody Brownlie
Amy Bucholtz
Jewell Buettner
Sarah Bullard
Brittany Burcl
Theodore Burge

Rachel Burnett
Shannyn Burns
Dana Butts
Hannah Cain
Christine Cain
Brandi Campbell
Tammie Campton
Rebecca Canizales
Wendy Cardenas
Edgar Cardona Traverzo
Cynthia Carlson
Deborah Carpenito
Amber Carpenter
Heather Carpenter
Danielle Carr
Michelle Caswell
Beena Chacko
Cynthia Chavooshian
Jessica Chen
Dana Clanton
Eugenio Clarke
Stephanie Cline
Lisa Collins
Susanne Collins
Sharmaine Collins
Christy Collom
Amanda Conger
Shandra Cooper
Cosmarie Cortes-Rivera
Samantha Cournoyer
Sarah Courville
Joseph Covelli
Jeffrey Cox
Laura Cox
Jennifer Cox
Randi Cox
Betty Craig
Mia Crawford
Sarah Crawford
Kimberly Crawford
Morgan Crawford
Clinton Crawford
Leigh Cromer
Robin Cronin
Jennifer Curtiss
Tonye Dakoru-Oruene
Amy Dalziel
Tracy Daniels
Chelsea Danner
Sue Dariz
Vanessa Darnell
Keith Davidson
Valerie Davidson
Tina Davis
Vickie Davis
Rebecca Deane
Norma Dennis
Brandi Denny
Dana Derosky
Myrna Diaz
Sarah DiDomenico
Jenell Dixon
Deborah Dodson
Hillery Dolford
Nancee Drone
Vernon Drummond, Jr.
Callie Dunbar
Jennifer Dunivant
Terri Dunn
Latisha Edgar
Angel Eisnaugle
Janet Engel
Lori Engen
Mary-Jane Espere
Debra Esposito
Gladys Estolas
Jenifer Eubanks
Cindy Evans
Vanessa Fadul
Christina Falcone
Marybeth Fanning
Mary Fargo
Julie Farmer
Tracy Farran
Ashlea Fenner
Amy Fenton
Kimberlee Ferrell
Katherine Ferrell
Paula Ferron
Mitzi Finn
Kendra Fling
Bernadine Flores
Amanda Florian
Jean Folchetti
Jessica Fox
Victoria Foxell
Amanda Francisco
Heather Franklin
Kurt Frauenpreis
Jenny Friedman
Carla Frymier
Cinquella Fullerton
Diana Furman
Neyhoney Galang
Kimberlee Galipeau
Janice Galvin-Garcia
Tiffany Gamab
Lisa Ganeko
Brittany Gano
Robin Garofalo
Tiffany Garrett
Michelle Gazdak
Meskerem Ge-bremedhin
Diana Gedamke
Deborah Geiger
Tonya Geise
Sara Geisler
Maria Victoria Geminiano Gatt
Debbie Gentry
Yolanda George
Randal Gerber
Maria Theresa Gerona
Renee Gibbs
Ann Gillespie
Lisa Ginapp
Jillian Givens
Crystal Glassburn
Tamesa Golston
Velia Gonzalez
Robin Good
Robin Gooding
Tyler Goodman
Jennifer Goodpaster
Heather Grant
Afton Grap
Crystal Greak
Colin Greenwood
Jennifer Gregor
Nerio Gregorio
David Griffith
Amie Groce
Jennifer Groom
Julie Gross
Neelam Gupta
Sandra Gutierrez
Patricia Guzik
Lori Gyldenvand
Louis Gyovai
Michelle Hacker
Brandy Hairrell
Erin Halbach
April Hall
Charissa Hambrock
Melissa Hammond
Kellee Hanigan
Sandra Hardin
Diana Harless
Pamala Harness
Recel Harris
Roberta Harris
Rachael Hart
Brittany Haynes
Jennifer Held

Megan Hellis
Kevin Helmondollar
Demetria Henderson
Andrea Henningsen
Tammy Hering
Maria Hesler
Lonna Hess
Courtney Hice
Laurie Higbee
Tara Higgins
Amy Hill
DiHuyen Ho
Stephanie Hoffman
Natalie Hogan
Hope Holben
Gregg Holcomb
Tanya Holcomb
Evangeline Holleran
Tiffany Hollinger
June Hood
Lesa Howard
Mandy Hughes
Cynthia Hunter
Lori Huntzinger
Jovan Huss
Tracy Ineman
Shelly Insko
Frances Irby
Kayleen Irwin
Brian Iscrupe
Susan Jackson
Chandrashene Jackson
Stacy Jameson
Heidi Janz
Rose Jelinek
Janatha Jetters
Mary Jirles
Renee Joder
Marylyn Johns
Brittany Johnson
Kelley Johnson
Kristy Jones
Tonya Jones
Tracy Jordan
Amy Jory
Rodrigue Joseph
Natasa Jurich
Rafael Justiniano Ramirez
Whitney Kandel
Beth Karns
Sukhbir Kaur
Cathy Kavejon
Meagan Keith
Lacey Keller
Laura Kelly
Christina Kerns
Dena Kerschner
Colleen Keyes
Michele Kirk
Jonathan Klingbeil
Leah Knaggs
Alison Knepper
Sara Koberstein
Shannon Koppert
Dorian Korz
Julie Kovach
Diania Kufta
Kathy Kulenich
Ramesh Kumar
Dori Lacap
Jennifer Ladner
Christine LaGrange
Clare Larson
Karla Latham
Rebecca Lavender
Tara Lawless
Robin Lawson
Ranka Lazic
Janet Lee
Doreen Lee
Mikyung Lee
Renee Lehr
Rinalda Leite
Keona Lemons
Elaine Lendall
Brenda Lenegar
Charles Lester
Barbara Lewis
Amanda Lewis
Sharlotte Lewis
Amanda Lewis
Samantha Ley
Claudette Liban
Kristi Lieb
Kevin Liebel II
Jeanine Linehan-Burack
Monica Lipton
Patricia Lisaka
Georgianna Little
Wendy Lizak
Jessica Loria
Lisa Loring
Tayana Louis
John Lubrano
Aundrea Ludlow
Katelin Lyons
Yuying Ma
Laura Mace
Charlotte MacKnight
Janelle MacSwain
Jeanne Mafokou
Joab Magara
Lauren Mahoney
Kristen Manley
David Marciniec
Vicki Marit
Diana Markle
Joelle Martin
Janice Martin
Janet Martinez
Mary Martinez
Ruth Martinez Camacho
Debra Massey
Hannah Matheson
Kristin Mathewson
Sandra Mathis
Carrie Mattix
Christine Maust
Tamula Maxwell
Andrea May
Rita McBride
Amber McCafferty
Tanya McCaffrey
Kaitlyn McCarthy
Michelle McCarthy
Patricia McClees
Jaqueline McClenithan-Bland
Kelly McCoy
Deanna McCoy
Michele McCreight
Jeanne McCullen
Elizabeth McCurley
Lori McGrath
Sandra McGuire
Kimberly McKevitt
Alan McMahan
Shalanda McNeil
Alisha McVay
Kristin Melbourn
Amber Melun
Jose-Clemente Mendez
Lilia Mercado
Anna Michel
Mai Milan
Michael Miller
Shanella Miller
Melanie Miller
Melinda Miller
James Miller III
Kelly Milligan
Lori Miner
Lala Miner
Valerie Mitchell
Claudia Molina
Cathleen Mondfrans
Valerie Moore

Angela Moore
Shellie Moore-Hernandez
Mary Anne Moraleda
Lisa Morales
Salvador Morales
Irma Morales Lopez
Rachel Morgan
Rachelle Morgan
Nicole Morin
Erin Morrow
Mary Morse
Magdalena Morse
Oma Mullins
Robin Murray
Amanda Myers
Rosa Nania
Debra Negley
Guy Nelson, Jr.
Pamela Newlun
Lorna Nichols-Turner
Noelle Nikas
Pamela Nodley
Diana Nore
George Normoyle
Everlyne Nyamwange
Mary Oakes
Tabitha Obenour
Isabelle Ofori
Wemimo Olagbaju
Tiwalade Olawuyi
Imelda Ordonez
Aaron Ortego
Alma Ortiz Nieves
Araseli Osson
Dorothy Owsley
Zeferina Padilla
Remuel Padlan
Suzzane Paguia-Patigas
Stephanie Papacostas
Jill Parrott
Mary Parsons
Sondra Passmore
Angela Patterson
Lamika Patton
Debra Pautz
Magdalena Pawelek
Amie Pennington
Jomala Perkins
Amanda Perrion
Patricia Petersen
Erin Petry
Samantha Pettigrew
Jane Pham
Amy Phillips
Ingrid Piedrahita
Maureen Pilati
Myriam Pinchinat-Vassor
Karen Pitchford
Elizabeth Plata
Sonja Posey
Lana Potocnjak
Jill Poupart
John Preece
Wanda Prince
Sabine Prince-Bataille
Melissa Pritchard
Fely Pula
Crystal Quinn
Angela Rabuck
Colleen Rader
Anna Rak
Jocelyn Ramsey
Christopher Redil
Lori Reese
Sandra Reis
Justine Relos
Laurie Reser
Gayle Rex
Joan Rexford
Jillian Reynolds
David Richards
Kathleen Riches
Jimmy Ricottone
Lori Riley
Kacy Riley
Fiona Ripple
Jolene Ritchey
Marie Rivera Polanco
Janese Rix
Dana Roach
Kristin Robbins
Lisa Roberts
Margaret Robertson
Maritza Rodriguez, MD
Wendy Roessler
Staci Rogers
Cynthia Rogers
Jessica Roisum
Catherine Rose
Jennifer Rosier
Ila Roske
Robert Ross
Yael Roth
Jennifer Rothacher
Kimberly Royer
Kayli Rozelle
Rheannon Rundstrom
Mallory Rusich
Jaime Ryan
Melissa Salazar
Leah Salter
Lisa Salvatore
Holly Samuels
Winnie Sanders
Ruth Santiago Marin
Marcus Santini
Pamela Sardy
Daniel Satterfield
Laura Scalf
Leah Schellenberg
Jutta Schimmoller
Tamara Schirtzinger
Nicole Schmidt
Kimberly Schuch-Estep
Melissa Scott
Sharon Scott-Bellinger
Redmond See
Jeanette Seidof
Crystal Seybold
Fransesca Shannon
Angela Sharp
Lois Shaw
Cynthia Shaw
Michelle Sheets
Deborah Sherron
Shelby Shipley
Katie Shoemaker
Linda Lee Showerman
Kyle Simms
Valerie Singleton
Nannette Sinigaglia Orengo
Laura Sizemore
Terrill Skaw
Michele Smith
Kristina Smith
Rita Smith-Shaw
Pamela Snelgrove
Norma Solis
Heather Sosby
David Spence
Tabitha Spinelli
Katherine Sprys
Jennifer Stacy
Marsha Stechschulte
Juliet Steinhoff
Diana Stetler
Melissa Stone

Suzanne Stosich
Thomasina Stout
Jade Stover
Katherine Strand
Jennifer Strickland
Troy Strubing
Kyndall Stucky
Ronda Stump
Ladina Suber
Kristi Such
Pamela Sulek
Alysia Sweeney
Rose Sweeney
Heather Swink
Patricia Tarawali
Maria Tarkir
Shannon Tate
Veronica Tautges
Lindsay Taylor
Charise Taylor
Kimberly Teal
Autumn Teater
Gloria Tercyak
Joan Terlisner
Zachary Thomason
Jennifer Thompson
Tommie Thornton
Kimberly Thurman
Linda Tillman
Genevieve Tipson
Aurora Tipton
Andrea Torok
Cheryl Tracey
Deala Trahan
Kimyen Tran
Karen Trifonoff
Michelle Troutman
Tracy Turner
Crystal Ulbright
Brandi Urban
Zofia Uscinski
Theresa Valent
Donald Van Boxel
Douglas Van Horn
Mary Vargas
Billie Varner
Marcel Vasquez
Wendy Veitch
Freddie Velazquez Feliciano
Duane Verhasselt
Eliasib Vias Cordero
Sheila Villaceran
Jo Anna Villegas Marquez
Laura Vines
Michele Vingia
Denise Vining
Elena Volkov
Pamela Von Busch
Amy Wagner
Aleisha Walburn
Jamey Walker
Mikel Walker
Michelle Walker
Christine Walmsley
Stacy Walters
Deborah Warfe
Amanda Warner
Hayley Warner
Kathryn Watford
Cooper Watt
Elaine Welch
Danielle Weller
Kelly Welsh
Lisa Wentzell
Lisa Wepking
Lena Wheat
Angela Wheaton
Angela White
Karen White
Wendy Whitkanack
Amy Whitlow
Carrie Wieging
Joshua Williams
Deloria Williams
Dianna Willis
Erik Wilson
Charlotte Wilson
Stefanie Winkler
Susan Wise
Jennifer Wood
Rebecca Woods
Lisa Wooldridge
Paul Wrubel
Connie Wyman
Deanna Wyman
Jaymark Yape
Christiana Yeboah
Audrey Youngblood
Grace Zamorano
Jamie Znidarsich
Angela Zook
Joni Zoz

Recertified certificants

Below are WCC, DWC, and OMS certificants who were recertified from July 2016 to September 2016.

Phyllis Abrahamson
Adelfa Acidera
Janice Adaway
Pamela Adkins
James Akindunbi
Vilma Alberto
Dina Almeida-McGlotten
Robert Andersen
Sarah Anderson
Barbara Anderson
Gabriela Andrade-Lopez
Ann Andruszko
Jesi Archer
Elizabeth Arity
Raymund Arzadon
Jackie Atkinson
Renata Baieve
Sandy Bailey
Wendy Baker
Jacquelyn Baker
Lynn Barry
Stephanie Battaglino
Rachael Beauchemin
Kelli Bennett
Sanjeev Bhatia
Marlene Bilello
Anita Bird
Heather Bogdanov
Teresa Bowen
Thomas Boyes
Linda Braden
Tanya Braunschweig
Kathleen Brigham
Wallace Brinkman, Jr.
Antonio Brown
Ayana Brown
Kendra Brown
Tracey Bruce
Sarah Brunner
Shelia Bufford
Lisa Burlison
Kristian Burnham
Tracy Buxton
Rebecca Campbell
Egbert Cao
Rosangela Carmona
Alana Carver Labrum
Deborah Casagrande
Sandy Castaneda

Katherine Castillo
Michelle Cepeda
Catherine Chun
Debra Cingari
Lynne Clark
Jane Clarry
Elizabeth Clover
Michele Cone
Margarita Coreas
Bertha Corral
Marcilla Couitt
Andrea Crnko
Mary Cummings
Diane Curren
Susan Curry
Teresa Daniels
Miriam de Souza
Fred Dean
Maria DeBruyne
Christina Decker
Brandi Deitrich Erickson
Eliud Del Toro Rivera MD
Deanna Delara
Natalie DeLong
Melanie Dominguez
Krzysztof Dragan
Lucinda Driggers
Karen Dumke
Mildred Dunn
Paula Dyer
Roxanne Earle
Tracie East
Dianne Edwards
Charles Erickson
Julio Esquivel
Maribel Falzone
Amy Fann
Madeline Fiorello
Dana Fitzhenry
Joan Floyd
Sarah Fourman
Deborah Fox
Andrea France
Jean Frank
Catherine Friel-Dombeck
Jennifer Fullen
Karen Fung
Kimberly Gagnon
Kathy Gard
Angelita Garlitos
Patricia Gartland
Leena Geevarghese
Joseph Giglio
Jolyne Giles
Nataliya Gilliland
Mary Glatt
Cathleen Gohlike
Liberty Gonzales-Cabebe
Kimberly Goolsby
Kathryne Gorby
Marianne Gorzkowski
Michelle Gratton
JoAnne Greene
Paige Gregar
Rebecca Gurule-Lovato
Aireen Gutierrez, MD
Miriam Guzman
Jennifer Hale
Rose Hammond
Shadine Harvey
Joshua Haynes
Kelly Hayward
Erin Hebert
Holi Heffron
Alexander Hellinger
Silvia Hinderliter
Susan Hofstetter
Rona Holandez
Jenna Hollinger
Debra Honeycutt
Sukhyune Hong
Sheila Honl
Susan Hooker
Monte Hoover
Georgeta Iacob
Brian Iscrupe
Jacqueline Jackson
Carol Jaconetti
Manish Jain
Ashly Jarrett
Alicia Jerome
Colinda Jones
Mary Jones
Rhonda Jones
Sandra Jonjo
Christene Joseph
Janice Kastner
Susan Kennerly
Julia Khan
Shahida Khattak
Dosun Kim
Wendy Kinsman
Andrea Kleess
Janice Klein
Ann Klinkusoom
Linda Kluth
Tammy Kubecka
Joseph Lach
Patricia Larson
John Lautenschlager
Lacie LeBlanc
Linda Leblond
Josephine Ledesma
Jelene Ledesma
Robin Lee
Shannon Lien
Lisa Lindsey
Kimberly Linse
Jeanne Lipely
Faith Loiselle
Jennifer Loshe
Yolanda Loveless
Carole Lowenstein
Patricia Lutz
Kaye Lynch
Emily Mahnen
Misty Martin
Leanne Mathis
Joi McMillon
Sonny Meek
Landon Metcalf
Linda Michaud
Fay Micner-Weiss
Karen Mills
Catrina Mitchell-Smith
Carla Mitsch
Gertrudes Monroe
Tina Moore
Maria Morales
Sandra Moreno
Belma Moreno
Linda Morgan
Donna Morrow
Phyllis Mullet
Tracie Nakamura
Sheryl Newman
Dawn Nimtz
Juanita Olinger
Bonnie Pannill
Lisa Parisi
Seema Patel
Maria Perez
Ma Teresa Perez
Janet Perhach
Joan Perrone
Mary Perry
Juzell Pettis
Lana Port
Ramona Prather
Tyla Pratt-Wildman
Cristina Presbitero
Susan Ptacek
Cherry Ravalo
Joshua Richardson

Heather Richardson
Jillian Rivera
Eduardo Rivera
Joan Roberts
Rita Roberts Slack
Victor Robles Padro
John Rogers
Kimberly Rosati
Roxanne Rose
Kristina Rush
Jaime Russell
Donna Russo
Natalie Saemmer
Gina Salerno
Ela Salud
Joanne Salyars
Carla Salzer
Bonnie Schwartz
Margery Seidel
Isabelle Serapion
Nikelle Severe
Kimberly Sheridan
Julia Shillingford
Tina Shurley
Jennifer Siwek
Christina Slivkanch
Amanda Smalley
Pamela Smith
Susan Smith
Maria Jesusa Soriano
Pamela Spade
Phyllis Speir
Sharon Stermer
Dawn Stone
Deborah Storms
Catherine Sudduth Wallbank
Michele Swain
Debra Swanson
Julie Tallman
Lee Terrill
Kelly Therrien
Yvonne Thornton-Headley
Sara Thurlow
Paula Timpanaro
Andrew Tingue
Elizabeth Tokunboh
Erlinda Tom
Hongxia Tong
Andrea Torok
Julie Torres
Mariah Tumbarello
June Turner
Marcia Turner
Laura Usher
Michael Vacca
Tiffany Vaughn
Guillermo Vicencio
Erma Villarreal
Carrie Vincent
Julie Wagner
Gwendolyn Wassell
Amanda Weiss
Shawna Wessels
Pamela West
Elizabeth Weston
Alicia Williams
Connie Winterling
Roberta Wright
Amber Yanes
Alla Yusupova
John Zachman
Karen Zanelli
Vera Zlotin

WHEN YOU DON'T KNOW WHAT TO SAY, STAND UP.

When someone you love is diagnosed with cancer, you have the power to help. There are many ways you can stand up and show that you care.

THEY TALK, YOU LISTEN. One of the most helpful and important things you can do is listen—without judgment and resisting the urge to give advice.

DON'T ASK, DO TELL. Instead of waiting to be asked for help when it is needed, be specific about what you can do and when, such as: prepare a meal, babysit, pick up groceries, help with pets, or provide rides to and from appointments.

LIVE AND LEARN. Educate yourself about your loved one's diagnosis and treatment. When you understand what a cancer patient is going through, you're better able to help keep information clear, track questions, and know how you can be most useful.

STAY CONNECTED. After the initial diagnosis, people tend to drift away. Be someone to count on for the long haul. Check in, send a quick note, or drop off a book. Small gestures go a long way.

Visit ShowThatYouCare.org to learn more about how you can stand up for someone you love.

Cancer Treatment Centers of America®

STAND UP TO CANCER™

Cancer Treatment Centers of America is a proud supporter of Stand Up To Cancer, an initiative designed to accelerate groundbreaking cancer research for the benefit of the patient.

Stand Up To Cancer is a program of Entertainment Industry Foundation, a 501(c)(3) charitable organization.