VOLUME 2 ISSUE 2 • SPRING 2014

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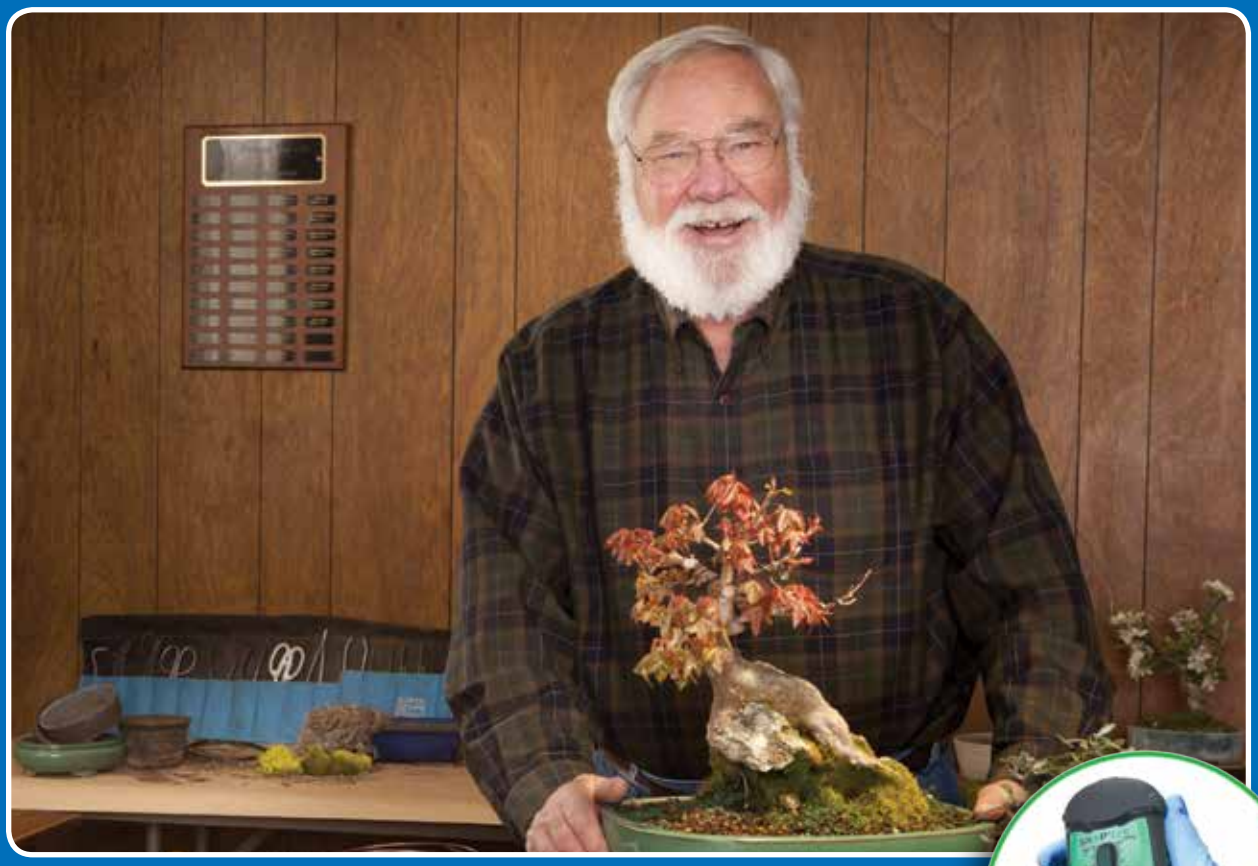

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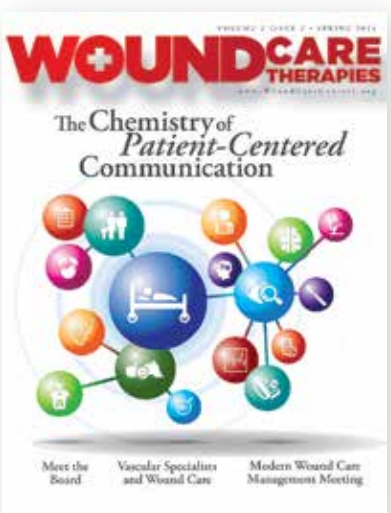

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EDITOR'S NOTE

What's the Plan, Man?

It all really comes down to one thing, doesn't it? It is the ability to convey your message to someone else, and the ability to understand that message and process it – communication. Simple, right?

Over ages and ages of man, the bourgeoning intricacies of cultural and societal communication have been at the core of the advancement of our species. Sure, bugs and animals have forms of communication, but you don't see them running around with cell phones. *Yet.* No, the unique ability to plot, plan and dream… that lies solely with us, the humans.

So why is it so hard to communicate between team members – and by team members, I include physicians, nurses, patients and their families – when it comes to the continuum of the patient's health care? What we need here is a plan of action.

But who should be involved? There's no shortage in the number of partners involved in the wound care process – whether it's the primary care physician, dermatologist, vascular specialist, cardiologist, plastic surgeon, podiatrist, endocrinologist, nutritionist, orthopedist, neurosurgeon, pathologist, nurses or the patient's own family – everyone needs to stay with that game plan in order to achieve the best outcomes. Patient compliance is challenging enough without the concerns that they'll fall through the cracks between doctor's visits.

So how do you plan out a strategic course of action that provides the nitty-gritty details and check points so all can follow along? Well, as with any case, it all starts with the patient. In this issue of Wound Care Therapies, we feature a primer on patient communication to help start the ball rolling.

And what about coordinating the back and forth of data, patient improvement and steps to be taken at each of those check points we naturally arrive at over the course of action? We've got some glimpses into the newest tools of the trade for collaboration, such as new apps, as well as "traditional" messaging systems within the social media realm.

Wound Care Therapies is proud to be a part of this quickly advancing community. Thank you for reading our magazine and don't hesitate to let us know what you would like to hear more about as we grow together in this ever-changing world of wound healing.

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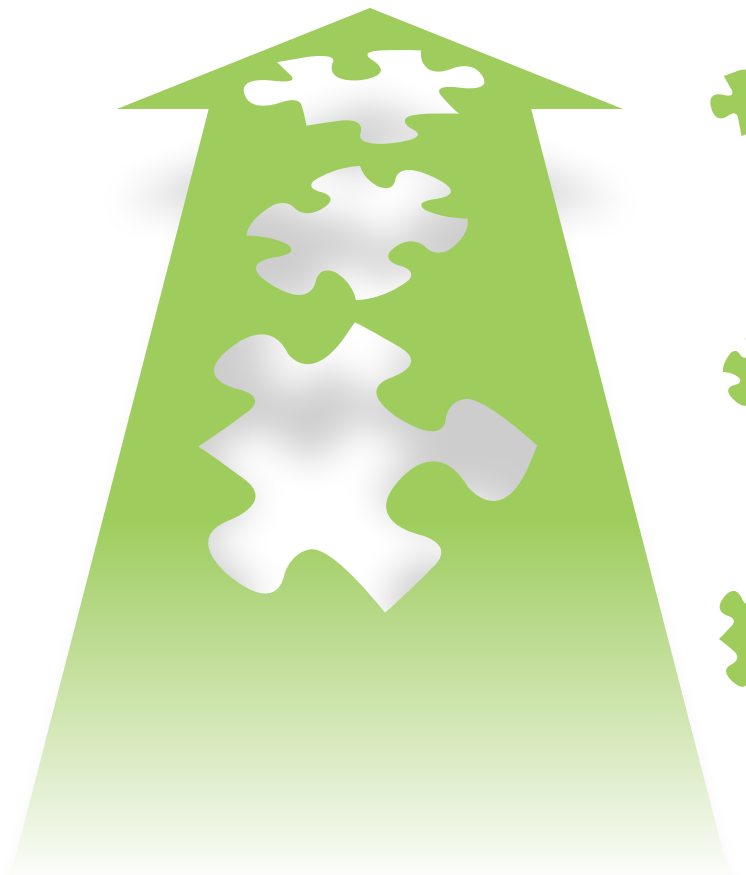

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Spring into the Cause!

Education is the key to successful wound treatment. At Wound Care Therapies, we believe we can be a tremendous source of education for physicians and their wound healing partners, including the patient. Our physician-finding online directory, *WoundCareCenters.org*, is currently undergoing some tender-loving fine-tuning with a facelift, updated content and a new professional section that will bring value to all who visit to learn or to find a provider in their communities. Combined, our magazine and our web directory will be a dynamic duo in helping you build your wound care facility.

In this issue we are proud to introduce you to several of our medical advisory board members—a sampling of the culmination of leaders that bring the compassion, expertise and techniques that assist patients and their loved ones daily in their quest for healing. We believe that as we continue to grow our expertise and share our accumulated knowledge, you'll agree that Wound Care Therapies brings something to the table that you cannot find in any other publication.

While we have made many strides in our efforts to connect with the leaders of our industry, there are still many more hills to climb. We have spoken with several of the innovators dedicated to the cause of treating chronic wound disease, and it is at this time I reach out to you, our audience, for your participation. I say participation, because we view this publication as your publication—a venue for you to be heard colleague to colleague.

How many of you are willing to step up and share with your colleagues the successful techniques you have seen that are proven to assist in the healing of chronic wounds? Have you attended a CME course with new insights? Have you, through R&D, discovered an alternative solution that merits mentioning? Tell us about your learning experiences.

Together, we stand at the threshold to the future of wound medicine, which means we can make the format of this publication whatever you, the reader, need it to be. Only you know for sure what is important in your individual clinical settings, and we would like to hear from you. If you have ideas, article submissions, event information, or topics of interest, I encourage you to reach out to me at *Kim@healthnews.org* or our Editor-in-Chief, Jana Acciacca at *Jana@healthnews.org*.

As always, we hope you enjoy this issue as much as we have enjoyed putting it together for you. We look forward to hearing from you soon.

Best regards,

KL Springfield

Meet the Experts

Oscar M. Alvarez, PhD, CCT, FAPWCA
Director, Center for Curative and Palliative Wound Care
at Calvary Hospital Inc., Bronx, NY
Chairman, FRAIL, a panel For the Recognition of the Adult Immobilized Life
Member, SCALE, an expert group to build a consensus proposal on
Skin Changes At Life's End

Michael Bain, MD
Hoag Wound Healing and Hyperbaric Medicine Center
at Hoag Presbyterian Hospital, Newport Beach, CA

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Robert B. McLafferty, MD, RVT
Chief of Surgery, Department of Surgery, Veterans Affairs Hospital, Portland, OR
Professor of Surgery, Division of Vascular Surgery, Oregon Health and Sciences
University, Portland, OR
Treasurer, Venous Disease Coalition

2014

13-17 June, 2014
ADA - American Diabetes Association
74th Scientific Sessions
Moscone Center
San Francisco, CA
www.professional.diabetes.org

18-21 June, 2014
UHMS - Undersea & Hyperbaric Medical Society
47th Annual Scientific Meeting
Hyatt Regency St. Louis at The Arch
St. Louis, MO
membership.uhms.org

21-24 June, 2014
ICE/ENDO 2014 – International Congress
of Endocrinology / Endocrinology Society
McCormack Place West
Chicago, IL
www.endocrine.org/endo-2014

27-29 June, 2014
18th Annual Hypertension, Diabetes
and Dyslipidemia Conference
(endorsed y the American Society of Hypertension)
Doubletree by Hilton
Charleston, SC
www.cmemeeting.com/18th-annual-hypertension-conference-2014

Submissions to the calendar should be emailed to the editor at Jana@HealthNews.org. Please include the event's name, date, time, location, admission price and contact information. Inclusion in the calendar is subject to available space.

24-27 July, 2014
APMA – American Podiatric Medical Association
2014 Annual National Scientific Meeting
Hilton Hawaiian Village and Convention Center
Honolulu, HI
www.apma.org

6-9 August, 2014
AADE - American Association
of Diabetes Educators
14th Annual Meeting
Orange County Convention Center
Orlando, FL
aade-365.ascendeventmedia.com

6-10 August, 2014
AAD – American Academy of Dermatology
Summer Academy Meeting 2014
Hyatt Regency Chicago
Chicago, IL
www.aad.org

17-20 September 2014
WOW Wild on Wounds
RIO Hotel
Las Vegas, NV
www.wcei.net/wow-conference

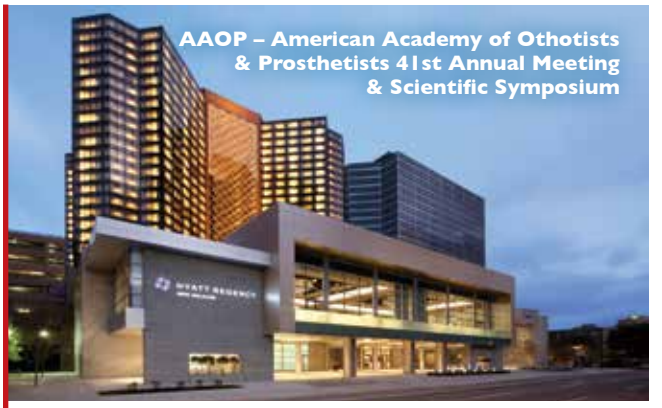
16-18 October 2014
SAWC - Symposium on Advanced Wound Care
Fall Meeting
Caesars Palace
Las Vegas, NV
www.sawc.net/fall

6-9 November, 2014
ACP – American College of Phlebology
2014 ACP Annual Congress
JW Marriott Desert Ridge Resort
Phoenix, AZ
www.acpcongress.org

13-15 November, 2014
Center to Advance Palliative Care
Rosen Centre Hotel
Orlando, FL
www.capc.org/orlando/document_view

18-22 November 2014
41st VEITHsymposium
Hilton Midtown
New York, NY
www.veithsymposium.org/index.php

5-7 December 2014
2nd Annual Modern Wound Care
Management Conference – La Jolla
Hilton La Jolla Torrey Pines
La Jolla, CA
www.modernwound.com



18-21 February, 2014
AAOP – American Academy of Othotists
& Prosthetists 41st Annual Meeting
& Scientific Symposium
Hyatt Regency New Orleans
New Orleans, LA
www.oandp.org/meeting2015

19-22 February, 2015
ACFAS – American College of Foot and Ankle
Surgeons 73rd Annual Scientific Conference
TBD
Phoenix, AZ
www.acfas.org

20-24 March, 2015
AAD – American Academy of Dermatology
73rd Annual Meeting
Moscone Center
San Francisco, CA
www.aad.org

24-28 March, 2015
AAOS – American Academy of Orthopaedic
Surgeons 2015 Annual Meeting
TBD
Las Vegas, NV
www.aaos.org

26-29 March 2015
APWCA 14th Annual National Clinical Conference
Loews Philadelphia Hotel
Philadelphia, PA
www.apwca.org

5-9 June, 2015
ADA - American Diabetes Association
75th Scientific Sessions
Boston Convention Center
Boston, MA
www.professional.diabetes.org

On the Hill

Representation for Those Involved in Care for Chronic, Non-Healing Wounds

PART 1

by Jason Prigozen, MD, FAPWHc,
Chairman, Legislative Committee APWH

The sky is not falling, but in both relative and real dollars, physicians' payments are. Every year since 1997, when the sustainable growth rate (SGR) was put in place as part of the Balanced Budget Act, physicians have taken a pay cut. While our legislators have only once let the SGR's formula give providers a true pay cut (4% decrease in 2002), we have been threatened yearly with up to 24% cuts in payments to providers. In addition, we take an inflationary cost of living pay cut annually. In inflation adjusted dollars (i.e. the true value of a dollar), we physicians have taken a pay cut for 17 years in a row. And in that time we have been asked to increase our productivity and efficiency. Complex new computer-based electronic medical records certainly have many benefits, but also place an increase burden in time and costs to comply with an increasing bureaucratic system.

But with all of these factors our largest concern is the quality of care. Many of the changes that the healthcare system continues to face are based on cost-effective treatment, which unfortunately may not always lead to that which is optimal—quality care. The best care for patients should be the biggest concern, and then applying this in a cost-effective manner.

The Academy of Physicians in Wound Healing (APWH) is the only physician-specific membership association representing allopathic, osteopathic and podiatric physicians and surgeons who are directly practicing wound care, as well as those who are involved in caring for patients who have or are at risk of developing chronic non-healing wounds. We have amongst our ranks all types of physician providers– interventional radiologists, vascular surgeons, cardiothoracic surgeons, podiatrists, orthopedic surgeons, family physicians, microvascular reconstructive plastic surgeons, hyperbaric medicine doctors, and limb salvage specialists. No other organization in wound healing can be as focused on the needs of the physician as the APWH. The Academy is the ONLY organization in the United States providing physician-directed education, advocacy and representation.

The APWH represents all physicians to legislators and administrators in order to address the ongoing changes in the national healthcare system. In addition to our strength as a physician advocacy group, our educational directives differ from other wound healing organizations. This is because the APWH addresses physicians' needs. Other organizations involved in wound healing have large membership bases of non-physician healthcare providers. This is an important factor that influences the educational programming, as well as the business interests and initiatives of these groups. The APWH is best positioned to provide a positive impact for our fellow physicians treating patients with non-healing wounds. This includes working as a resource for government and insurance agencies to help to bring about changes to physician payment programs so that physician reimbursement is appropriate for all involved. We hope to share our plans to address our insurance concerns regarding the healthcare delivery system, as well as explain our physician-directed education directives, in the next issue.

If you are interested in joining APWH, getting more information about our physician specific membership association or would like to learn more about our "Congressional Physician" program, please visit www.APWH.org, email info@APWH.org or call 336-923-5604.

Jason Prigozen, MD

Vascular Specialists Should Create, Participate and Coordinate Wound Centers

Robert B. McLafferty, MD

Over six million Americans suffer from a chronic wound. A chronic wound is defined as a wound that has failed to heal within a normal time frame; that is, 4 weeks for your average person and 2 weeks for patients with diabetes mellitus or other medical conditions that affect wound healing. There are over one million new cases of patients with chronic wounds every year. More specifically, 3.5 percent of Americans over the age of 65 have a venous stasis ulcer, and over one million Americans suffer from pressure ulcers. Of the 18 million Americans who have diabetes mellitus, 15 percent will have a non-healing ulcer at some point in their lives. Additionally, tens of thousands of Americans also suffer from critical limb ischemia, which leads to foot ulcers and gangrene.

"Ironically, despite caring for these types of patients, vascular specialists are among the rarest types of physicians who evaluate and treat patients with chronic wounds specifically in a wound care center."

While almost every type of physician sees chronic wounds in their respective specialty, there are many types of physicians that see these patients more commonly. These include general surgeons, plastic surgeons, dermatologists, infectious disease specialists, vascular medicine specialists and vascular surgeons. The latter two types of physicians can be grouped into what one would label as a "vascular specialist." It is this group of physicians that perhaps see the most types of chronic wounds because typically these two types of specialists commonly evaluate and treat venous leg ulcers, ischemic arterial ulcers of the feet and neuropathic diabetic foot ulcers. Ironically, despite caring for these types of patients, vascular specialists are among the rarest types of physicians who evaluate and treat patients with chronic wounds specifically in a wound care center.

The reason for this gap in vascular specialists providing care in a specialty wound care clinic may be related to the stereotypes that exist. These include such beliefs that wound care doctors have a profound lack of knowledge in caring for chronic wounds; wound care centers, and more specifically wound care nurses, are thought to turn to every type of bazaar goo, gel, and bandage without first understanding their effectiveness; some treatment options—such as hyperbaric oxygen therapy—are regarded as hocus pocus; there is said to be no difference in the outcomes for a wound center versus care by a vascular specialist; and wound care physicians are considered to be more focused on financial gain than patients.

"…the large majority of vascular specialists lack the very specific requirements based on sound evidence that are needed to heal wounds."

Ironically, the large majority of vascular specialists lack the very specific requirements based on sound evidence that are needed to heal wounds. They evaluate their patients in the same clinic space that they see patients without wounds; follow-up in their clinic more than likely ranges from every three to six weeks; the staff in their clinic is not specifically trained in wound care; attempts to coordinate multiple home and skilled nursing facility nurses varies with inconsistent protocols; and the clinics in which they work only have the very basic types of bandages.

"Patients are much more comfortable in a specialty wound care center where all staff is specifically trained to care for patients with chronic wounds."

Given the aforementioned challenges, there are multiple reasons for vascular specialists to participate in a wound care center and move their patients out of their "regular" clinic and into a specialty wound care clinic. In doing this, the vascular specialist, along with his or her partners, can improve efficiency. When care is performed properly on a patient with a chronic wound, it becomes time-consuming. Additionally, having the adequate amount of supplies on hand can be difficult in a regular non-wound care clinic. Moving patients into a wound care center takes burden of that care off of the regular clinic staff. Patients are much more comfortable in a specialty wound care center where all staff is specifically trained to care for patients with chronic wounds. Once chronic wound patients are transferred to a wound clinic, this frees up more time in the regular clinic and allows those physicians to see more appropriate patients.

The reason wound care is so time-consuming is that a basic algorithm must be consistently followed in order to maximize healing potential. This includes assuring adequate arterial perfusion, eliminating edema, debriding necrotic tissue, treating bioburden and infection, treating venous pathology, optimizing host factors, and applying adjuvant techniques like skin substitutes or hyperbaric oxygen therapy. Interestingly, when protocols are put in place for these steps in a specialty wound care center and all care is centric for the wound patient, efficiency dramatically increases compared to these types of patients being evaluated in a "regular" vascular specialist clinic.

Continued on page 14

Continued from page 13

Two aspects of care that make a profound difference in getting a patient with a chronic wound to heal is the ability to see the patient weekly and performing aggressive serial debridement. In a scientific study published in 2012, Dr. Robert Warriner, et al, showed a dramatic increase in healing of diabetic and venous leg ulcers in patients being seen weekly versus bi-weekly.[1] For diabetic foot ulcers, the average time to heal in the weekly group was 22.8 days; and in the bi-weekly group, 70.6 days ($p<0.000001$). Similarly, for venous leg ulcers, the average time to heal in the weekly group was 22.1 days; and in the bi-weekly group, 77.0 days ($p<0.000001$).

Regular serial debridement is equally important. Cardinal, et al, determined that wound area reduction was 54 percent higher when wounds were debrided weekly for the first four weeks versus not being debrided at all.[2] Even wounds that did not heal experienced a greater area of reduction when compared to those not undergoing debridement. Standard instruments used during debridement in an exam room of a wound care center, include scalpels, forceps, scissors, currettes, ronjeurs, nail clippers, biopsy punches, silver nitrate sticks, ample gauze, cautery pencil and local anesthetic. This variety of instruments is not typically found in a vascular specialists' exam room. Other materials and supplies often found in a wound care center are specialized compression bandage systems, skin substitutes, wound vac systems and hyperbaric oxygen therapy.

Hyperbaric oxygen therapy has been studied extensively, and evidence now points to its beneficial role for a number of clinical conditions. Medicare approved conditions include diabetic lower extremity wounds, delayed radiation injury, refractory osteomyelitis, compromised skin flaps and grafts, and critical limb ischemia.

The advantages of a vascular specialist creating, participating or coordinating a wound care center are multifold. These reasons include having a multidisciplinary team of physicians on the panel, adapting a streamlined process of evaluating and treating patients, using evidence-based clinical practice guidelines, applying the latest advances in wound care, tracking outcomes more closely, and creating an atmosphere that is patient-friendly and physician-convenient.

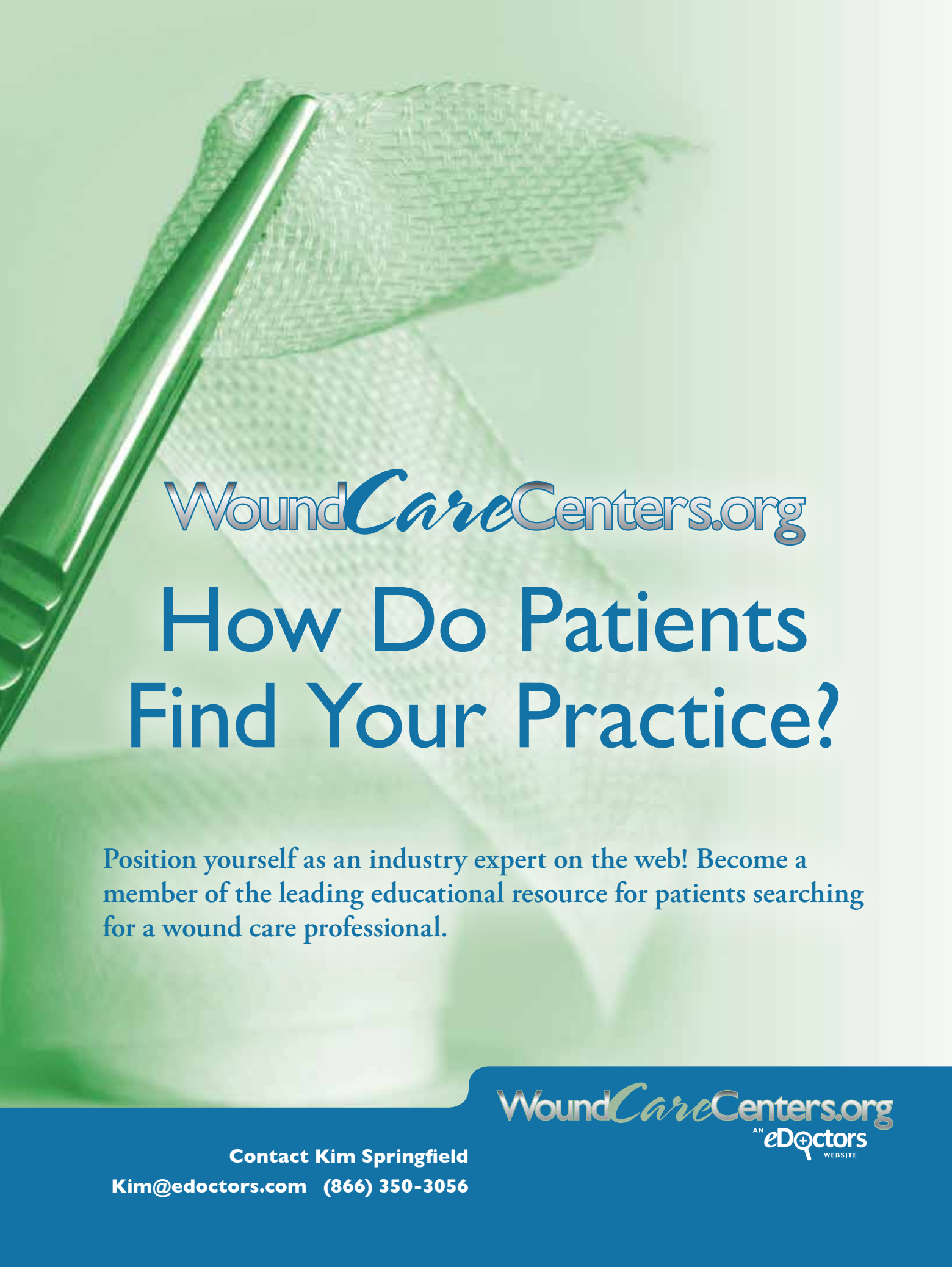
Lastly, many vascular specialists view the time spent in a wound care center as not valuable in terms of their ability to maximize billing and collections. This may be one of the most misconstrued reasons why vascular specialists are not seeking to be a part of a wound care center, or move their patients with chronic wounds from their regular clinic to their new "half-day" in the wound care clinic. Let's look at an example of relative value units (a measure of physician work) for a vascular surgeon. A femoral artery to popliteal artery bypass using great saphenous vein reflects approximately 26 relative value units of vascular surgeon work. This measure of work determines how much the surgeon will be paid for this operation. In contrast, a vascular specialist can rack up a total of 44 relative value units if he or she sees approximately 15 patients in a four-hour period in a wound care center, charges appropriately for their evaluation and management, completes seven debridements, applies one skin substitute, treats four patients with hyperbaric oxygen therapy, performs three nail debridements, and pares three callouses. This compares to open repair of a ruptured abdominal aortic aneurysm at 42 relative value units. The above outline of a 15-patient wound care clinic is very typical if the physician is following the clinical practice guidelines and charging appropriately.

"New physician relationships will be cultivated, which enhance practice building."

In summary, vascular specialists are the one kind of physician that sees the most types of chronic wounds. It makes clear sense that they should create, participate or coordinate wound care centers. Moreover, doing so will also provide a new portal for referral of patients primarily coming into the wound care center. These patients may require surgery or other procedures as well. New physician relationships will be cultivated, which enhance practice building. Most importantly, the vascular specialist will become more versed in wound care and therefore be able to provide their patient with optimal care. At the very least, patients with chronic wounds deserve this from their vascular specialist.

References

1. Warriner RA, et al. More frequent visits to wound clinics results in faster times to close diabetic foot and venous leg ulcers. Adv Skin Wound Care 2012;25:494-501.
2. Cardinal M, et al. Serial surgical debridement: a retrospective study on clinical outcomes in chronic lower extremity wounds. Wound Repair Regen 2009;17:306-11.



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The Chemistry of *Patient-Centered* Communication

by Michael Egan

Healthcare providers working in today's fast-paced and multifaceted healthcare system have to keep track of myriad details and communication channels in order to coordinate care. For every patient, you might interface with multiple care members on your team, as well as practitioners from other facilities who are transferring care or collaborating on care.

"In order to maintain optimal wound care and patient safety, it is crucial not to miss or misinterpret critical information and minute-to-minute status changes."

In providing care for wound patients, these interfaces may become even more complicated. In order to maintain optimal wound care and patient safety, it is crucial not to miss or misinterpret critical information and minute-to-minute status changes. The margin for error is extremely narrow in wound care, and effective communication is directly correlated to providing effective clinical care.

Communication & Collaboration among Care Team Members

How well is your team communicating with each other and external practitioners regarding the care of each wound patient? Is the team collaborating efficiently, and are the communication protocols you have in place suited to the different communication styles of all team members? For example, doctors, nurses, home care providers, pharmacists, support staff and technicians may all use different styles to transfer information, with varying degrees of timeliness. If there isn't a system in place that accommodates these differences and alerts relevant caregivers to changes in each patient's status, things can be missed and mistakes can be made.

To avoid medical errors that result from communication failures, it is crucial to review and assess how your team communicates, and make any improvements necessary. Are your communications among team members timely, legible and complete with information regarding wound location, type of dressing, frequency of dressing changes and other specifics? If you have experienced a breakdown at any point in the communication chain, it may be time to consider how your practice might establish a culture that supports open communication and encourages improvements in this area.

Communication from Care Team to Patient and Patient's Family

Some points in the communication chain that may need improvement in the inpatient clinic setting and also as you prepare patients for outpatient care can include:

- Providing continuing education via diagrams and written instructions to patients and their caregivers regarding wound dressings, devices and proper nutrition for the patient
- Establishing a system for follow-up communication and feedback from patients whose care has been transferred to a home setting or another facility
- Organizing transfer of information to other facilities and care providers that is specific and individualized to each patient to ensure subsequent providers receive comprehensive medical histories for each wound patient

Follow-Up Communication with Patients for Home Care

Providing effective wound care and ensuring good outcomes includes following up with wound patients after they have completed their inpatient care and gone home. It is important that each patient who is released from your facility to home care has access to a point-person on your care team who they can follow up with. The person on your care team who is responsible for following up with outpatients should communicate with them on a regular basis and follow protocols that facilitate clear communication and ongoing education for home care.

The protocols your assigned healthcare provider might use to conduct effective follow-up assessments with outpatients can include:

- Taking a picture of the wound so the patient can see it—the photo helps illustrate changes and identify problems
- Explaining what the appearance of wound indicates in terms of tissue changes, color, discharge, etcetra
- Reviewing appropriate dressings for a wound and review the supplies needed

- Listening to patient's concerns related to wound and wound care, and refer to other healthcare professionals as needed

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Challenges to Continuing Wound Care

Many wound patients who have been released from inpatient clinic care find that their wounds do not heal effectively once they are home. Patient and family involvement in continuing wound care is crucial to healing. It can be difficult for wound patients to get access to healthcare providers who have wound expertise. If an outpatient does not have easy access to an outpatient coordinator at your facility, or a professional home care provider, things can go bad very quickly.

In order to avoid problems, the outpatient coordinator at your facility will need to assess whether the patient and family members know how to research and understand wound dressings on their own if they are not able to reach the appropriate healthcare providers. In order to establish if the patient and family are able to provide vigilant care to heal wounds, the coordinator can:

- Ask the patient a series of questions to make sure the patient understands all aspects of continuing wound care
- Ask questions about family members who are helping with home care, to assess whether the patient and family are compliant with care or if they need additional support **W**

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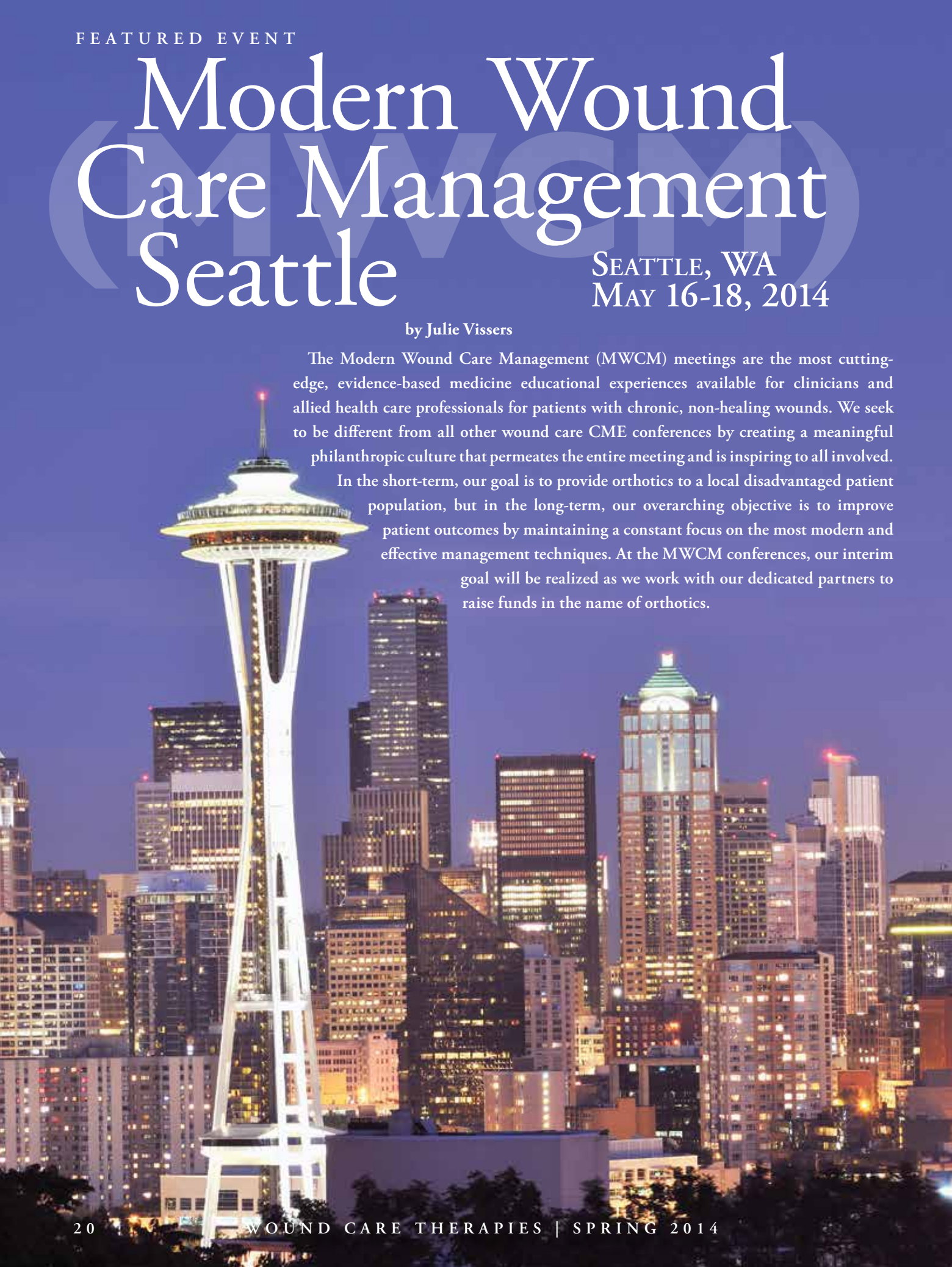
Modern Wound Care Management Seattle

Seattle, WA
May 16-18, 2014

by Julie Vissers

The Modern Wound Care Management (MWCM) meetings are the most cutting-edge, evidence-based medicine educational experiences available for clinicians and allied health care professionals for patients with chronic, non-healing wounds. We seek to be different from all other wound care CME conferences by creating a meaningful philanthropic culture that permeates the entire meeting and is inspiring to all involved. In the short-term, our goal is to provide orthotics to a local disadvantaged patient population, but in the long-term, our overarching objective is to improve patient outcomes by maintaining a constant focus on the most modern and effective management techniques. At the MWCM conferences, our interim goal will be realized as we work with our dedicated partners to raise funds in the name of orthotics.



Directed by Robert McLafferty, the MWCM Conference-Seattle will bring together Pacific-Northwest regional physicians, nurses and wound care providers with corporate supporters and national faculty for a weekend of stimulating CME and updates on the latest technology, pharmacology and devices to assist patients with non-healing wounds. Our faculty members are experts in the field, and they include Drs. William Marston (UNC) and Thom Rooke (Mayo), as well as local PNW faculty. A primary educational focus of MWCM is to bring together multiple specialties in order to enhance the sharing of information for what can be offered to the patient with the chronic wound. Additionally, ample time is given for case presentations and discussion with faculty to make the meeting truly interactive.

Join us for the 2nd Annual Modern Wound Care Management Conference - La Jolla, December 5-7, 2014 at the Hilton La Jolla Torrey Pines.

For more information, visit *www.modernwound.com*

*If the Shoe Fits...*DONATE IT!

MWCM has partnered with the Seattle Chapter of the American Diabetes Association to raise money to purchase special diabetic shoes and orthotics for disadvantaged/homeless patients suffering from current or past diabetic foot ulcers. Evidence shows that custom-made, properly fitting shoes can prevent amputation in diabetic patients with severe neuropathy.

Our inaugural meeting was in La Jolla, CA last fall, where our attendees and sponsors raised nearly $5,000 in donations to provide shoes to diabetic patients in need. We have already quadrupled our efforts for our conference in Seattle—Dr. Comfort, a DJO Global Company, has agreed to donate 100 pairs of orthotic shoes to the needy population of Seattle to support our cause.

"Dr. Comfort is dedicated to designing and building shoes that improve people's mobility, health and lifestyles," said Greg Karian, marketing director of Dr. Comfort. "People with diabetes are at a much higher risk for foot health complications, including calluses, foot ulcers and foot deformities. Without proper care, these conditions can eventually lead to amputation. Diabetic footwear is often recommended by health care professionals to help prevent these complications and get people back on their feet. Medicare and other insurances may help cover the cost for qualified individuals. This shoe donation should help provide some comfort and extra protection for these people, while also allowing for increased mobility and independence."

"According to the Centers for Disease Control, comprehensive foot care programs can reduce the risk of amputation by as much as 85 percent," Karian continued. "That number is an incredible testament to the extreme importance of proper foot care for people with diabetes."

We are also very grateful to Crary Shoes, Osborn Medical (Rooke Boots) and PW MINOR for their generous donations and discounts offered to help us purchase shoes for patients in need.

MWCM fundraising efforts include a ribbon campaign and fun 5K/10K run during the conference to raise additional awareness of the ADA cause. W

The Next Generation of Wound Care

A White Paper on SilvrSTAT® Antibacterial Wound Dressing Gel

by Cynthia L Eaton, MD

Wounds are a major threat to public health and the economy. The cost of wounds to the US healthcare system annually is measured in billions of dollars. According to the National Institutes of Health (NIH), the treatment of chronic wounds alone exceeds an estimated $25 billion each year.[1] Acute and emergency wound care related to trauma, surgery and burns is required for millions of procedures. Skin scarring, an additional burden of wound healing, represents an annual cost of $12 billion. Healthcare professionals, caregivers and patients are looking for improved treatment options and healing rates to minimize potential complications and shorten hospital stays. The pressure to reduce overall costs of wound care, to include nursing time and medical supplies, is greater than ever. Biotechnology-based pharmaceuticals and medical devices have become the focus of product innovation and are sure to impact the outcomes-oriented environment of emerging markets. The purpose of this white paper is to introduce a product manufactured with patented biotechnology that will lead the next generation of wound care treatment and healing. SilvrSTAT® Antibacterial Wound Dressing Gel is a molecular silver product nanoengineered to provide superior wound management more effectively than any other product on the market.

PRODUCT DESCRIPTION

SilvrSTAT® Antibacterial Wound Dressing Gel is a water based topical gel for use in the management of first and second degree burns, stasis ulcers, pressure ulcers, diabetic ulcers, lacerations, abrasions, skin tears, surgical incision sites, device insertion sites, graft sites and donor sites. Laboratory testing has demonstrated that SilvrSTAT® inhibits the growth of a wide spectrum of microorganisms to include bacteria, viruses, yeast and mold without any known toxic side effects.[2] SilvrSTAT® contains 32ppm Proprietary Silver (purified water, nano-silver at .01 micron), Propylene Glycol, Triethanolamine and Carbomer. SilvrSTAT® is odorless, nonirritating and transparent, allowing good visualization of the wound bed and margins. SilvrSTAT® is easily applied directly to the wound and covered with a conventional or specialized dressing. The gel should normally be reapplied with a dressing change every 24 hours, but the frequency will depend on the type and condition of the wound. In kill time studies (antimicrobial effectiveness), SilvrSTAT® has been shown to maintain broad spectrum antibacterial control with greater than 99.9% reduction in bacteria counts at one hour and twenty-four hours, and greater than 3-4 log reductions from original bacterial counts at seven, fourteen and twenty-eight days.[3] (See Figures 1 and 2). When applied directly to the wound 1/8" thick and covered with a dressing, it would be expected to maintain antibacterial effectiveness for at least 3 days. For 1st and 2nd degree burns: SilvrSTAT® Antibacterial Wound Dressing Gel should be applied to 1st degree burns and allowed to dry. Second degree burns may require an application which is allowed to dry followed by a loose dressing to protect blistered areas. If the integrity of the skin is compromised, burn unit or burn treatment protocols[4] to include the use of SilvrSTAT®, non-adhesive dressings and a secondary protective layer should be considered. SilvrSTAT® is intended for external use only and should be stored at room temperature. SilvrSTAT® contains no sulfa components or alcohol and is non-flammable. It will not stain or discolor tissue. There are no known or reasonably suspected adverse reactions associated with the use of SilvrSTAT® Antibacterial Wound Dressing Gel, as stated in the United States package insert.

LEADING TECHNOLOGY UNMATCHED BY OTHERS

SilvrSTAT® was officially launched into the US market by ABL Medical in the fourth quarter of 2012 as the first of a new class of bioengineered products based on the company's patented technology. SilvrSTAT® is FDA cleared as a 510(k) medical device with FDA approved

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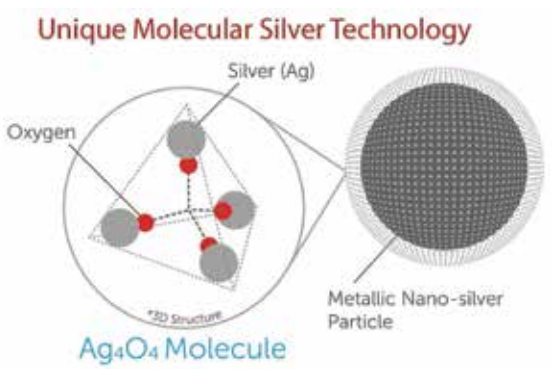
indications as listed under the product description. The introduction of SilvrSTAT® marks the start of a new era for topical wound therapies and technology available to the biomedical industry. As a respected provider of innovative medical products to healthcare professionals globally since 2011, ABL Medical's MAgNET (Multivalent Silver Nano Engineered Technology) manufacturing process is unique and differentiates their product line from competitors in the wound care market. SilvrSTAT® was formulated to provide the most stable and effective topical antibacterial available and is composed of particles with optimal size and properties for killing bacteria and allowing prompt wound healing. SilvrSTAT® is manufactured with great accuracy using ten thousand five hundred volts of alternating current for electrophoresis. The end products generated by ABL's patented technology contain precisely engineered multivalent silver nanoparticles with an atomic structure that is radically different than the monovalent ionic silvers in current use. SilvrSTAT® is composed of stable molecules of metal + oxide, which is one of the keys to its remarkable properties. A metallic core of elemental silver coated with a tetrahedral structure of silver oxide (Ag_4O_4) produces the bio-activity necessary to continuously kill microbes in a wound. The size of the nanoparticles is also essential to understanding the properties of SilvrSTAT® and what sets it apart from other medical forms of silver. There is an optimal particle size for achieving the maximal effectiveness of silver nano-particles. If the particle size becomes too small, the product becomes unstable and loses its effectiveness. In demonstrating the knowledge of just how significant this physical property is to nanoparticles, ABL Medical holds a patent for what the company deems the most bio-active and medically effective particle size. Further study of these particles by leading experts revealed that within the molecules of metallic silver oxide previously described, each silver particle is able to act independently when mobilized within a water base.[5] Because of the way they are engineered, the silver particles have a very unique charge barrier which pulls them together in clusters but holds them to within 2-3 nanometers of each other. This supports their magnetic 'super charge' while allowing maximal surface interface with the microorganisms to which they are exposed. In contrast, ionic silvers bind to biologically active chemical groups present in the cell membrane or other cellular components, proteins or nucleic acids. The killing of microbes by molecular silver occurs in the proximity of the infective agent as opposed to essentially direct contact required by ionic silver. Ionic silvers must come into close contact with the cell membrane of bacteria in order for the transfer of electrons to occur. This places ionic silver at a clinical disadvantage for killing bacteria where binding of the cell membrane consumes electrons from multiple silver ions leaving them incapable of further bactericidal activity. A much higher concentration of silver (i.e. silver ions) is required for ionic silvers to be effective. Therefore, it is essential to understand that there is a critical difference in the efficacy and toxicity of silver as an ion and silver as a metal due to both chemical binding properties and concentration levels.[6,7] Composed of neutrally charged molecules with multivalent silver oxide shells, the nanoparticles found in SilvrSTAT® pull electrons from multiple bacteria at the same time while in proximity to the bacteria causing continuous lysis at very low concentrations. Figures 4, 5 and 6 demonstrate the difference in the antibacterial efficacy of an ionic silver such as silver sulfadiazine versus a multivalent molecular silver such as SilvrSTAT®. SilvrSTAT® is distinctly different from other silvers in that electrophoresis produces complex, multivalent molecules of metallic silver + silver oxide versus soluble monovalent silver ions. As a broad spectrum antimicrobial, SilvrSTAT® is essentially equal and in many cases superior to traditional biochemical antibiotics with the distinct advantage that bacteria do not mutate to destroy its activity. Nano-engineered as an ultradilute water based silver gel, it acts as a powerful inorganic agent comparable to and synergistic with commercial antibiotics.[5]



ATOMICALLY UNIQUE MECHANISMS OF ACTION

SilvrSTAT® contains technologically advanced metallic nanosilver with unique mechanisms of action that 1) promote rapid primary wound healing, 2) treat and prevent infection, 3) reduce pain and swelling, 4) stimulate stem cell release and activation of tissue factors and 5) promote chronic wound healing. The demonstrated ability of SilvrSTAT® to effect healing is the result of its unique characteristics that include, but may not be limited to:

- Multivalent silver oxide molecules surrounding a metallic silver core that continuously kills microorganisms (Ag_4O_4)
- Catalytic cycling capability due to rapid metallic bonding and repelling of outer electrons to microbial proteins versus one on one ionic bonding
- Higher bioavailability and reduction of bioburden at extremely low concentrations of silver
- Ability to reduce the inflammatory phase, increase the proliferative phase and increase the healing rate
- Generation of reactive oxygen species (oxygen radicals) which are lethal to microorganisms but do not harm normal cells and tissues
- Resonance phenomena generated by radiation frequencies (UVA wavelength range 890-910 THz) killing bacteria, viruses, molds and fungi by destroying proteins and resulting in reduction of pain and inflammation
- Stem cell activated angiogenesis and possibly growth factor mediated stimulation of pre-existing stem cells
- Particle size engineered to optimal stability and surface chemistry interaction
- Stability to light and temperature changes without the use of any additives
- Colorless composition comprising a transparent water-based gel for ease of application and visibility of wound bed and margins

The sum effects of these mechanisms of action and characteristics provide rapid antimicrobial activity at ultradilute concentrations of silver.(See figure 3)

BIOLOGICALLY POTENT AND SAFE AT LOW CONCENTRATIONS

SilvrSTAT® has been subjected to meticulous laboratory testing and stringent safety testing by a variety of respected laboratories, researchers, universities and private institutions to generate independent data to demonstrate that this form of metallic silver is not toxic. ABL Medical Product Safety Studies include cytotoxicity studies, skin irritation and sensitivity studies, ingestion studies and injection studies.[8] SilvrSTAT® has met all standards for safe use and has been found to be non-irritating, non-sensitizing and non-cytotoxic. Antibacterial activity has been observed at low concentrations independent of the organisms tested. A comparison of both the minimum inhibitory concentrations (MICs) and minimum bactericidal concentrations (MBCs) of the nanoparticles found in SilvrSTAT® with the most prominent antibiotics used worldwide showed them to be essentially equal.[9] The majority of the strains tested exhibited MICs of 2.5ppm silver or less. The maximum concentration required was 5ppm. In addition, SilvrSTAT® nanoparticles have the unique advantage that pathogens do not mutate to destroy their activity. Rigorous analysis has demonstrated consistent and effective inhibition of the growth of Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli, Acinetobacter baumannii and dozens of other strains of bacteria. In fact, it has been effective on all types and strains of pathogens it has been tested against. SilvrSTAT® has been used in a diverse range of settings and remains effective in the presence of antibiotic resistant strains including, but not limited to MRSA, VRE and CRE as well as Candida albicans. The nanosilver particles in SilvrSTAT® were found to emit resonance frequencies which are unique to their multivalent charges and in the same range as that part of the ultraviolet spectrum that kills bacteria and viral particles. The distinction between the effectiveness of SilvrSTAT® to improve wound healing and control bioburden in comparison to other medical silvers, hydrogels, enzymatic debriders and osmotic agents is currently of keen interest within the medical community. In head to head studies SilvrSTAT® has demonstrated superior kill times and outcomes versus topical treatments currently available for use in wound management. A key theory supporting improved healing

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times and outcomes noted lies in the ability of SilvrSTAT® to impact the tissue-specific progenitor and pluripotent stem cells that contribute to wound repair. If and how silver stimulates stem cell proliferation is a highly debated topic. It has been postulated for more than a decade that some silver preparations enhance wound healing beyond what is attributed to infection control alone.[10] There is no universally accepted mechanism of action to explain the growth stimulation properties of silver and most topical silvers are antimicrobial barriers used when a hydrogel is indicated to keep a wound moist and allow for natural healing to occur. Normally, the growth of granulation tissue in open wounds begins at the periphery and progresses towards the center of the wound. When SilvrSTAT® is applied to open wounds and burns, deep pink coloration of the wound bed and margins accompanied by rapid ingrowth of healthy granulation tissue occurs. Smooth margins, islands of epithelialization and significant reduction in pain and swelling is observed. This suggests rapid removal of infective agents, stem cell activated angiogenesis and possibly growth factor mediated stimulation of pre-existing stem cells within the wounded tissue.[11] Regardless of the mechanisms involved, the overall effect is a rapid change in the wound healing cascade from the inflammatory phase to the reepitheliazation phase resulting in improved healing times and outcomes with no evidence of toxic effects. Furthermore, the observed reduction in scarring is thought to be secondary to a cascade of events initiated by the enhanced healing properties of SilvrSTAT® and persisting thru the proliferative and remodeling phases to cause improved collagen filling within the matrix of the wound producing less tension, better bridging of tissue components and less fibrotic constriction. SilvrSTAT® is non-toxic and cost effective, in part, due to the low 32ppm concentration of atomically unique nanosilver. It has no known or expected adverse effects.

IMMEDIATE IMPACT ON THE MANAGEMENT OF WOUNDS

SilvrSTAT® is formulated as a 32ppm antibacterial wound dressing gel that provides quick and continuous antibacterial activity. The improved healing outcomes observed when SilvrSTAT® is applied to wounds is most importantly due to its potent antibacterial properties resulting in reduction and control of biofilm and bioburden. This critical benefit is applicable to a broad range of clinical challenges such as rapid healing, treatment and prevention of infection, facilitated graft uptake or donor site healing and resolution and prevention of chronic wounds.[12] Feedback and preliminary data from healthcare professionals throughout the US and Canada supports in vivo testing that SilvrSTAT® has a positive impact on the inflammatory, proliferative and remodeling phases of wound healing. SilvrSTAT® rapidly reduces the bioburden, effectively killing common and resistant strains of bacteria following application. SilvrSTAT® stimulates the production of stem cells effectively shortening the inflammatory phase and accelerating the proliferative phase to improve healing times. It is postulated that SilvrSTAT® reduces wound related pain by disrupting the conduction of electrical impulses at the nerve endings. The precisely engineered particles have a high electrical conductivity while bearing the chemical inertness of the silver itself. Clinical data suggests that it is superior in performance when compared with the leading prescribed topical wound preparations. Evidence based clinical practice has also proven SilvrSTAT® to be a preferred treatment for wounds when compared to current topical therapies.

MRSA and VRE, two of the most epidemiologically significant pathogens that cause hospital acquired infections, are associated with high morbidity and mortality rates.[13] Increases in hospital costs combined with loss of revenue associated with hospital acquired infections are a major concern in the clinical management of wounds. In 2005, the annual cost in the US to treat hospitalized patients with MRSA infections alone was estimated to be between $3.2 and $4.2 billion as reported by the International Society for Pharmacoeconomics and Outcomes Research (ISPOR).[14] By 2011, fewer

cases of MRSA infections were occurring in the US compared to 2005, according to a study conducted by the Centers for Disease Control and Prevention (CDC). Despite the decreases, MRSA infections remain problematic. The majority of infections have their onset in the community or outpatient settings.[15] The economic impact of community acquired MRSA has been assessed using economic simulation models to estimate costs and differentiate them between payer perspectives. Cost varies depending on patient age and co-morbidities but in the US, community acquired MRSA imposes an estimated annual burden of $478 million to $2.2 billion on third party payers and more than $1.4 billion on society.[16] Colonized and infected patients are potential reservoirs for transmission to any setting. Regardless of the drug-resistant pathogen, increased costs are primarily driven by prolonged hospital stays and/or elevation of care.[17,18] Human case studies have shown SilvrSTAT® to eradicate resistant bacteria in wounds with or without antibiotics and with no reported toxicity. In an initial hospital study, the prototype of SilvrSTAT® significantly improved the treatment of wounds infected with MRSA. The average time to wound closure improved and patients reported a significant reduction in wound associated pain. Clinically significant reduction in healing times and improved outcomes have been observed in long term care facilities, podiatry clinics, wound clinics and burn units. It has been estimated that the nanosilver used to formulate SilvrSTAT® could potentially reduce the overall cost of treatment of a wound and reduce the average length of stay in a hospital.

In differentiating between a chronic wound and an acute wound it is noted that while chronic wound healing does not follow the same patterns of acute wound healing,[19,20] SilvrSTAT® is effective on both. In contrast to acute wounds, chronic wounds have different molecular and biochemical changes resulting in impaired inflammatory responses, decreased cellular function, an increased proportion of senescent cells and poor re-epithelialization.[21] Chronic and non-healing wounds are prevalent in older patients, accompanied by comorbidities and healing rates reduced by the aging process. Multi-drug resistance and colonization with more than one type of bacterial strain are common in chronic wounds. SilvrSTAT® has proven to be effective in the treatment of chronic wounds by resolving clinical or subclinical infection, relieving persistent pain, improving the appearance of unhealthy tissue, promoting healthy granulation tissue and decreasing recurrent wound breakdown. Early Long Term Care facility wound data showing a significant reduction in MRSA infected wounds treated with SilvrSTAT® and successful treatment and prevention of chronic ulcerative wounds has been reported and is pending publication.

SUMMARY

There are dozens of silver products on the market today. Most are ionic preparations which work by chemical action that requires them to have direct contact with microbes to have any positive effect. SilvrSTAT® Wound Dressing Gel represents the next generation of technology for wound care and is unequalled by its competitors. In comparison to current therapies, it represents a novel approach to killing or disabling pathogens and resolving acute and chronic wounds, burns and disruption or irritation of the skin. It is atomically unique and produced using the MAgNET (Multivalent Silver Nano Engineered Technology) manufacturing process for higher bioavailability and effectiveness. It is likely that the unusual effectiveness is due to the relationship between the surface chemistry and inner properties of the oxide + metal and the size and distribution of the particles. The multivalent, catalytic nano-molecular technology of SilvrSTAT® provides rapid antibacterial activity, reducing and controlling biofilm and bioburden at extremely low concentrations of silver. These properties are the result of patented technology and precise manufacturing conditions. SilvrSTAT® has been tested extensively and found to be bactericidal for all organisms tested, to include all resistant strains. In other studies, the nanoparticles comprising SilvrSTAT® were compared to other commercially available silver products and found to have superior activity to all other preparations tested. The data suggest because of the high safety profile and broad spectrum of antimicrobial activity, SilvrSTAT® can effectively be used in conjunction with or as an alternative

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to antibiotics. The laboratory kill rates on bacteria and other pathogens cannot be matched by other topical wound products. It has a remarkable impact on the healing process, disinfecting the wound and preventing further infection while reducing inflammation and stimulating stem cells and angiogenesis for improved outcomes and reduced scarring. Chronic wounds require their own unique approach independent from protocols established for acute injury. Due to its low concentration and high safety profile, SilvrSTAT® is appropriate for both chronic and acute wounds unbound by efficacy, tolerability, cost, toxicity, sensitivity or adverse effects. In addition to its superior healing and antimicrobial properties, other great appeals for SilvrSTAT® are its cost effectiveness, lack of local or systemic toxicity and simplicity of administration. It is safe and non-toxic and there are no known or expected adverse reactions associated with its use. SilvrSTAT® is water based with no alcohol, alginate or sulfa components. SilvrSTAT® provides a significant advance in the promotion of a pathogen-free healing environment and is the first of several products expected to be introduced by ABL Medical. SilvrSTAT® should be considered for any of the FDA approved indications listed and prioritized to patients with wounds complicated by resistant organisms or where exposure to resistant organisms is anticipated. SilvrSTAT® should be included in any strategy to reduce costs related to wound management in hospitals, long terms care facilities, outpatient clinics and even in the community. SilvrSTAT® is stocked by major wholesalers and DME suppliers with third party reimbursement channels established in most market segments.

NEWLY RELEASED ANTIMICROBIAL DATA

Head-to-head clinical testing of topical wound treatments against common or resistant wound pathogens is a powerful and compelling way to compare products against each other. It may potentially present unique challenges and cause great debate as to whether the results definitively determine the best course of treatment. While each patient's wound(s) and co-morbidities are unique and variable, the fundamental characteristics of head-to-head in-vitro studies have the potential to address critical outcome issues. These issues include reduction in bioburden, broad spectrum antimicrobial activity, and no increased risk to the patient or wound due to adverse effect on healthy tissue. Secondary issues may sometimes be extrapolated from such testing and prove helpful in determining minimum and maximum dosing intervals, onset of bactericidal activity and cost effectiveness. ABL Medical and Analytical Resource Laboratory, Lindon, UT, designed a head-to-head test to evaluate SilvrSTAT® against five commonly prescribed types of topical wound products currently on the market:

Medical Grade Honey - Manuka honey from New Zealand lists effectiveness on wounds by osmotic activity, lowering wound pH, and autolytic debridement for promotion of wound healing.

Mupirocin Ointment - An antibiotic derived from *Pseudomonas fluorescens* that is bacteriostatic at low concentrations and bactericidal at high concentrations. It is effective against gram positive bacteria, including MRSA and certain gram negative organisms. Resistance has been demonstrated from long term use.

Ionic Silver Gel - Ionic silver gels are formulated as amorphous hydrogel base that provides antimicrobial action while donating moisture.

Silver sulfadiazene - The most commonly used topical antibacterial agent for the treatment of burn wounds. It has a broad spectrum of antimicrobial activity but may cause pain, burning or itching of the treated skin. It is contraindicated in patients that are allergic to sulfa.

Botanical Extract Gel – A topical preparation formulated with naturally produced botanical extract. The botanical extracts are readily absorbed into the wound and act as astringents to exert anti-inflammatory and bactericidal properties.

All six products were tested against six common and problematic organisms to include:

MRSA, VRE, P. aeruginosa, E. coli, C. albicans and S. agalactiae. Samples for Time-Kill analysis of the bacteria and fungi were drawn at 10 minutes, 1 hour, 4 hours and 24 hours. The Table shown in Figure 7 reflects the comparison of SilvrSTAT® to existing treatments. The results strongly

support that SilvrSTAT® provides the best broad spectrum coverage for bacteria and fungi of the six tested products. In this study, only SilvrSTAT® attained reduction of pathogen counts to <10 CFU/ml for all tested pathogens. Hard evidence as to whether SilvrSTAT® demonstrates the best clinical based outcomes for wound healing will come from evidence based practice and well-designed clinical studies.

FIGURES

Figure 1 - Bacteria Kill Time Study with SilvrSTAT® at 1hr and 24hrs

KILL TIME STUDY WITH 32 PPM GEL				
ORGANISM	**EXPOSURE INTERVAL**	**AVG. CONTROL TITER (CFU/ML)**	**PERCENT REDUCTION**	**LOG REDUCTION**
MRSA	1 HR	1.9×10^6	>99.99	>4.98
	24 HR	1.9×10^6	>99.99	>4.98
P. aeruginosa	1 HR	2.1×10^6	>99.99905	>5.02
	24 HR	2.1×10^6	>99.99905	>5.02
VRE	1 HR	1.9×10^6	>99.56	2.35
	24 HR	1.9×10^6	>99.99	>5.38
BACTERIA	FDA Requirements for bacteria indication: Not less than 1.0 log reduction from the initial calculated count at 7 days, not less than 3.0 log reduction from the initial count at 14 days, and no increase from the 14 days count at 28 days.			

ABL Medical Data on File- FDA Required Time Study: Nelson Laboratories (#474527, #474527A, #474527C, #474527B, #474527D, #474527E)

Figure 2 - Bacterial Kill Time Study For SilvrSTAT® Expressed as Log Reduction @ 7, 14, and 28 days

ORGANISM	DAY 7	DAY 14	DAY 28
S. aureus	>4.72	>4.72	>4.72
P. aeruginosa	>4.31	>4.31	>4.31
E. coli	>4.56	>4.56	>4.56
C. albicans	>4.73	>4.73	>4.73
A. niger	>3.59	>3.59	>3.59

ABL Medical Data on File- Nelson Laboratories (#429606)

Figure 3 - Disinfectant Efficacy Results at 5 and 10 Minutes

60 Different Tests per Bacteria to Evaluate How Quickly Bacteria Are Killed By SilvrSTAT®

ORGANISM	TIME POINT (MIN)	CARRIER TITER (CFU/CARRIER)	NUMBER OF CARRIERS TESTED	NUMBER SHOWING GROWTH	NUMBER SHOWING NO GROWTH
P. aeruginosa	5	5.5×10^4	60	0	60
	10	5.5×10^4	60	1	59
S. aureus	5	5.5×10^6	60	6	54
	10	5.5×10^6	60	1	59
S. choleraesuis	5	5.5×10^6	60	1	59
	10	5.5×10^6	60	0	60

ABL Medical Data on File-Nelson Laboratories #217898

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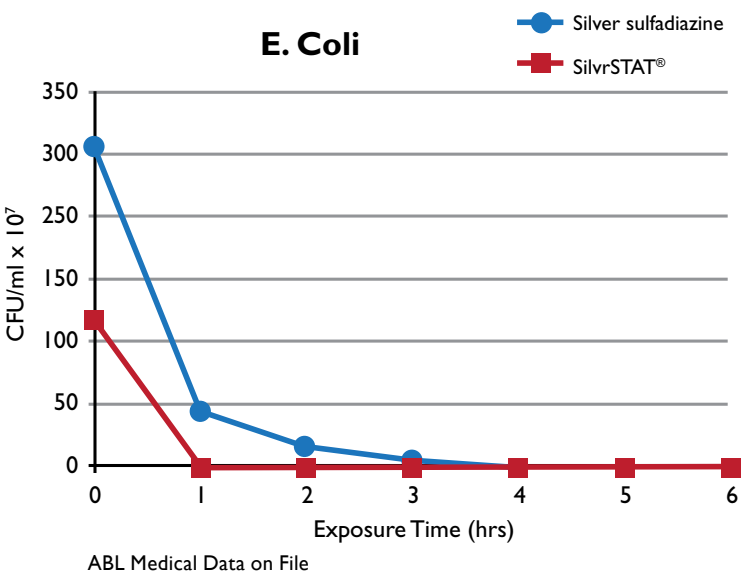
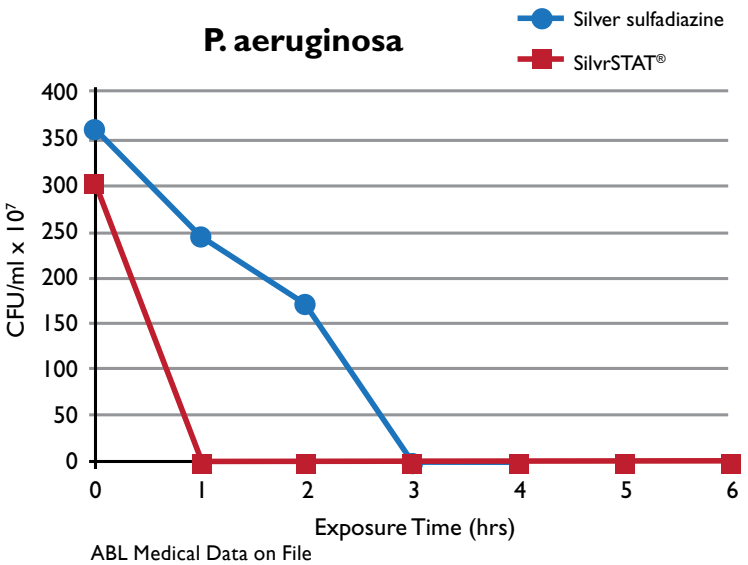
Figure 4 - SilvrSTAT® vs. Silver Sulfadiazine Bacterial Kill Time Data For E.Coli



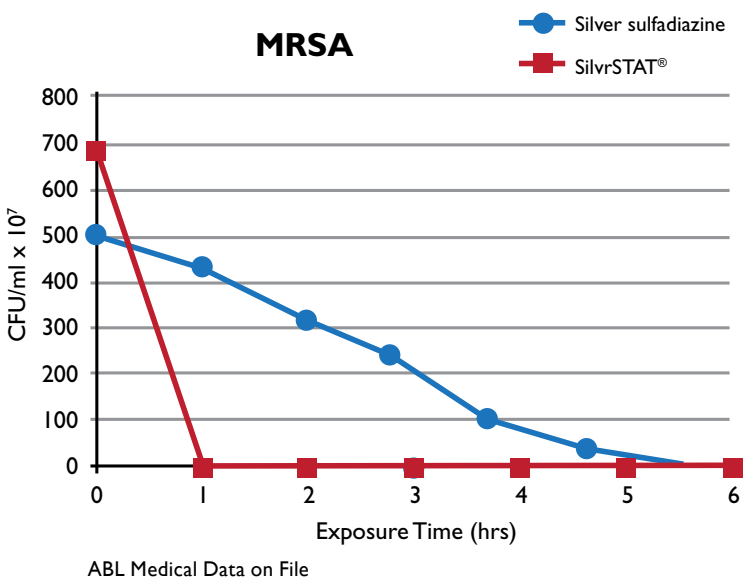
ABL Medical Data on File



ABL Medical Data on File

Figure 5 - SilvrSTAT® vs. Silver Sulfadiazine Bacterial Kill Time Data For P. aeruginosa

Figure 6 - SilvrSTAT® vs. Silver Sulfadiazine Bacterial Kill Time Data For MRSA



ABL Medical Data on File

Figure 7 - Bacteria/Fungus Kill Time Study with SilvrSTAT and 5 Common Topical Antimicrobials

PRODUCT	EXPOSURE INTERVAL	MRSA $3.8x10^5$ CFU/ml	VRE $7.2x10^5$ CFU/ml	P. aeruginosa $5.2x10^5$ CFU/ml	E. Coli $8.1x10^5$ CFU/ml	C. albicans $6.8x10^5$ CFU/ml	S. agalactiae $4.3x10^5$ CFU/ml
SilvrSTAT®	10 min	220000	500000	<10	8000	<10	250000
	1 hour	1200	10000	<10	<10	<10	15000
	4 hours	200	250	<10	<10	<10	<10
	24 hours	<10	<10	<10	<10	<10	<10
Medical Grade Honey	10 min	18000	450000	300	500000	700	8500
	1 hour	10000	180000	100	350000	<10	8000
	4 hours	20000	150000	<10	200000	<10	800
	24 hours	<100	600	<10	1300	<10	100
Mupirocin Ointment	10 min	<10	400000	65000	500000	150000	<10
	1 hour	<10	150000	700	80000	40000	<10
	4 hours	<10	150000	<10	16000	14000	<10
	24 hours	<10	180000	100	<10	12000	<10
Ionic Silver Gel	10 min	150000	350000	180000	450000	250000	280000
	1 hour	80000	35000	<10	75000	40000	3500
	4 hours	200	15000	<10	<10	35000	200
	24 hours	200	18000	<10	<10	800	<10
Silver Sulfadiazine Crème	10 min	120000	350000	1300	65000	7000	4000
	1 hour	2000	7000	100	300	100	100
	4 hours	300	<10	100	100	<10	<10
	24 hours	100	100	<10	<10	100	<10
Botanical Extract Gel	10 min	150000	420000	500	5500	14000	8000
	1 hour	75000	200000	100	200	300	3000
	4 hours	15000	200000	<10	<10	<10	100
	24 hours	<10	40000	<10	<10	100	200

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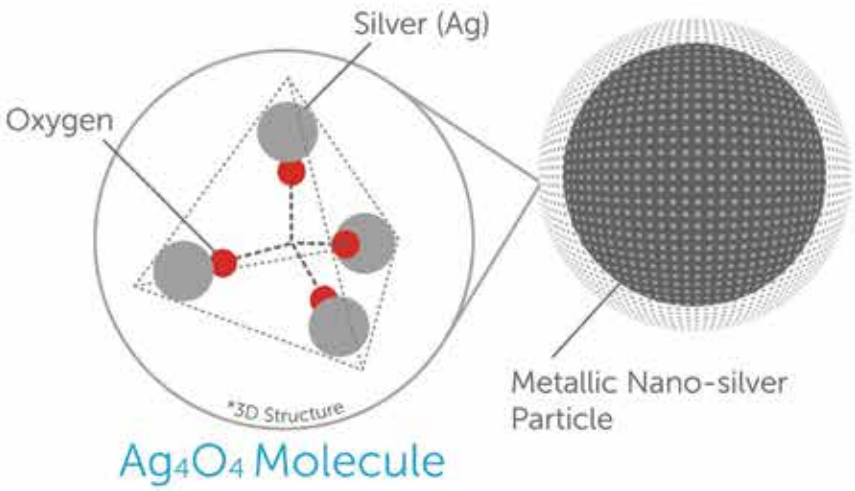

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P. aeruginosa	1 HR	2.1×10^6	>99.99905	>5.02
	24 HR	2.1×10^6	>99.99905	>5.02
VRE	1 HR	1.9×10^6	>99.56	2.35
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Mobile Clinical Photography for Wound Care and *Beyond*

by Christopher Cabell

From its inception in 2010, the Soffer Health Institute (SHI), a multidisciplinary medical practice in South Florida, has relied upon clinical photography as an integral part of its practice for pre- and post-operative tracking of treatment, provider collaboration and insurance billing. As technology for the diagnosis and treatment of various diseases has improved vastly in the ensuing years, so too have the fields of photography and mobile communication. But with this new technology comes a greater expectation for applying these advancements to health care.

In 2011, SHI founder Dr. Ariel Soffer saw a need within his own practice for a mobile solution that would streamline clinical photography and provider collaboration. Dr. Soffer partnered with a team of established iPhone developers to form AppwoRx™.

The brainchild of a physician's medical knowledge and a developer's technical savvy, AppwoRx is a powerful HIPAA-compliant mobile application that provides medical professionals and patients alike with the ability to document and discuss treatment for a variety of medical concerns. Since its initial development, AppwoRx has grown to include in its clientele a number of physicians worldwide who use the suite daily to catalog patient records and images, track treatment progress, collaborate with other providers and market their services to prospective patients. Most importantly, the app allows consumers to take an active role in their own treatment.

While the software was first designed to serve vein practices and their patients, the technology provided by AppwoRx appeals to physicians in a variety of other specialties, including wound care. By nature, this field relies significantly on clinical photography to illustrate the progress of treatment and healing, and to monitor for any potential complications. A 2010 study conducted by Neal Sikka, an emergency physician at George Washington University, found that doctors were able to accurately diagnose a patient's condition by viewing images of wounds taken by the patient on their own mobile phone in 90 percent of cases. This data alone speaks compellingly to the value of clinical photography tools in the field of wound care.

Aside from its benefits to patients, providers also stand to make gains in productivity and accurate record-keeping with the use of this tool. In the past, physicians used disposable wound rulers to measure a wound's dimensions, as well as to notate patient data prior to photographing. Recent updates to the AppwoRx system have streamlined this tedious process. Doctors can now use the Draw & Annotate feature to mark photos with brushes, drawing tools and custom shapes to highlight areas of concern or make notes. The updated Enhanced Image Gallery also allows providers to compare before and after images side by side to observe and note patient progress.

The solutions available to varied practices and healthcare facilities have been customized. Earlier this year, AppwoRx partnered with Miami Children's Hospital, which was ranked fifth in the nation in the 2013 *InformationWeek 500* survey of technology innovators, to create a custom platform that would allow on-call emergency physicians and staff to document information on patients in their care and share this information with other providers using a physician directory accessed via their mobile device. It proved to be successful. On-call providers were able to instantly access patient data and collaborate with onsite attending physicians to provide an enhanced level of diagnosis and treatment. This resulted in better overall patient care.

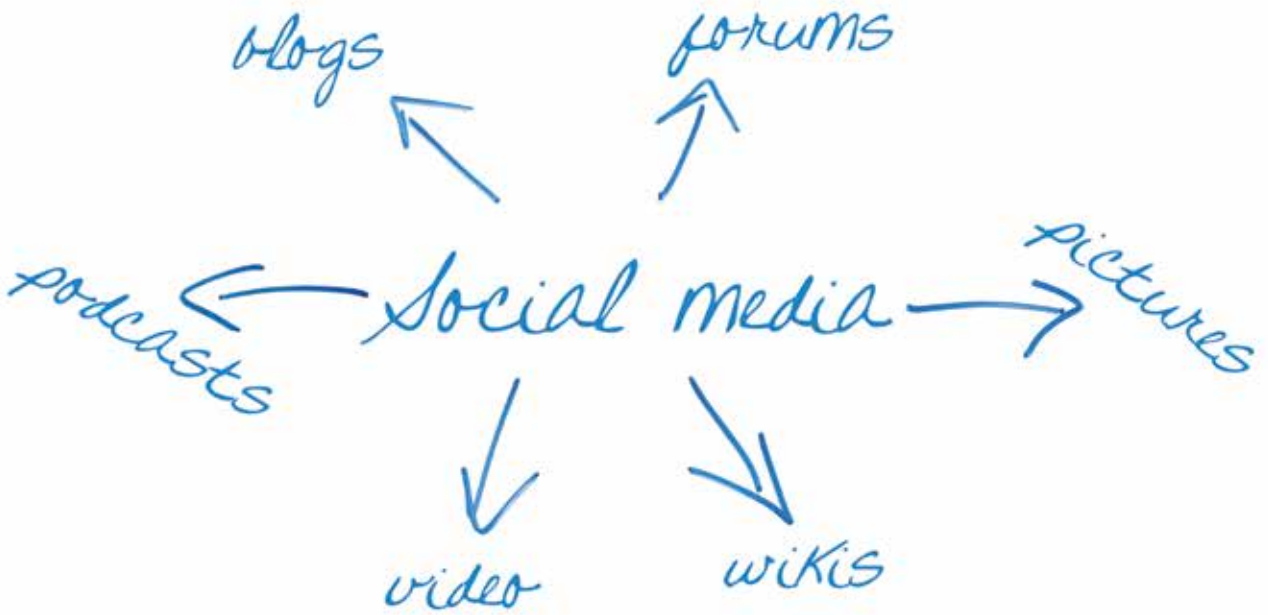
In an age where technology is advancing at an exponential rate, there is hardly an industry that does not stand to benefit from mobile applications being made available to businesses and their consumers. The possibilities offered by these applications are critical to healthcare. High-quality images and the ability to connect with healthcare partners does more than market business and sell products, they can often improve patient health and save lives. The potential of the AppwoRx software is limitless in this regard. Kandy Hammond, RN, of the Midwest Vein and Laser Center in Dayton, Ohio, agrees. "One of my favorite features is being able to easily send before and after comparisons to referring physicians. This is a case when a picture is truly worth a thousand words." Using the features provided by AppwoRx, a physician's library of knowledge no longer needs to be confined to the medical textbooks on his bookshelves. With a few clicks on a mobile device, he can broaden his horizons far beyond the doors of his own ER. **W**

Social Media Decoded

Your Tools to Building Chronic Wound Awareness

Instagram. Twitter. Snapchat. Facebook. Google+. LinkedIn. Youtube. These are just a few social media networks that are helping professionals connect with clients and bolster their businesses—and we haven't even scratched the surface.

by Bettina Kina



As the number of social media platforms constantly expands, many experts may feel pressure to make their presence known on every single site. The truth is that there is a better way to maximize your efforts.

Watch Your Step

Don't fall into social media and trap yourself in an incessant cycle of catch-up and meaningless tweets simply because you fear you're missing out on opportunities. The FOMO trap – fear of missing out – will lure you in and eat you alive if you don't set up a social media plan and strategy. If you fly without a plan, the end result will have you feeling like you've wasted all your digital energy and yielded no outcomes.

"The FOMO trap – fear of missing out – will lure you in and eat you alive if you don't set up a social media plan and strategy."

I'm sure you've seen other medical industries (we're talking about you, cosmetic surgery) capitalizing on celebrity tweets and reality star videos, and wondered how a wound care center might fit into the mix. Well, it's really quite simple. Social media creates the opportunity to change and stimulate conversation, and if used correctly, it can help you increase chronic wound care awareness and improve patient education. If you focus on building the right social media chemistry with your followers, you can keep it simple, consistent and effective!

Building the Right Foundation

The first step in building the right social chemistry is to identify your core social networks. What will work best for you and your practice? Don't create a Youtube channel if you know your practice isn't going to create videos. Just because Mashable and Techcrunch both tell you they are a MUST, doesn't necessarily mean they're right for your practice. Based on social media statistics, your ideal social network core should include: Facebook, Twitter and Google+.

"Avoid setting up channels you won't utilize – an Instagram page that hasn't been updated in five months will hurt more than it will help."

Focusing on a targeted number of social media channels will keep your patients informed, connected and consistently engaged without taking up too much of your precious time. Avoid setting up channels you won't utilize – an Instagram page that hasn't been updated in five months will hurt more than it will help.

Creating Your Social Media Profiles

The 140 characters on your Twitter profile matter. They matter a lot. And so does that cover image of yours. First impressions are everything on social media, and clear and concise visual and textual communication is key.

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Each of your social network profiles should be consistent with one another, and should communicate what you do and why you do it. Let your website focus on the "what" – such as "what is a wound?" – and plan to use your profiles to engage and humanize the condition. Use social media to showcase how wound care centers help treat and manage chronic wounds, and how specialists can change and improve the lives of patients and their families.

"You have to have a plan. Spend one day with your team to build a health awareness calendar you can use year after year."

Why You Need an Awareness Calendar

You have to have a plan. Spend one day with your team to build a health awareness calendar you can use year after year. Identifying awareness months and events allows you to piggyback on the social media efforts of other key players in the medical space.

For example, aligning your content strategy for November with diabetes awareness gives you the opportunity to engage in conversations that the entire medical and media communities are already having. Becoming a part of the conversation results in new followers and increased engagement via re-tweets and Likes, all of which build your social media chemistry.

"Take it one step further and participate in real life awareness events."

Digital PR

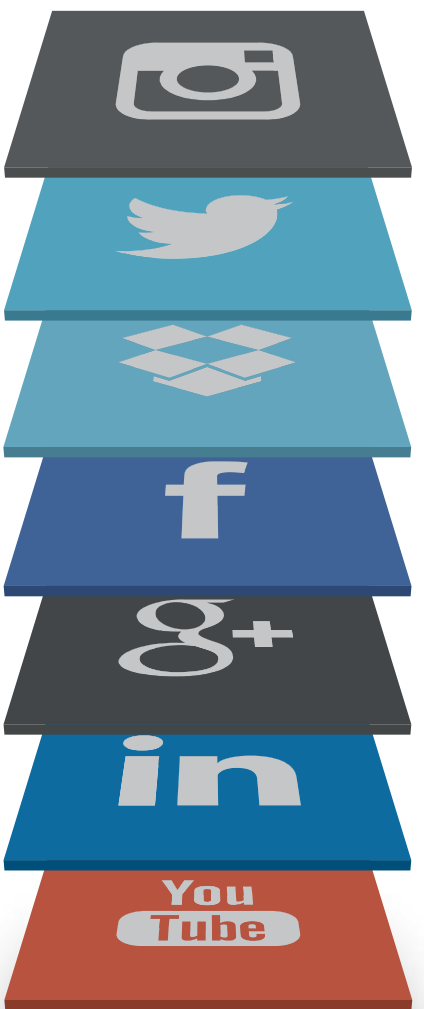
Take it one step further and participate in real life awareness events. You will be surprised at the amount of digital PR coverage that will come from your team's participation. Local news outlets and bloggers focus on these types of organic stories, and it creates an opportunity for you to establish ongoing media relations.

Identify local awareness groups, youth and adult centers, and any health bloggers that fit your target demographics and then establish a relationship with each of them. These relationships can lead to your group presenting IRL (in real life) seminars and digital webinars that educate communities and build chronic wound awareness. Social media is cyclical and if you become an advocate and provider of quality information, your social network becomes your advocate as well.

"Focus on what matters most to your practice and use your digital and IRL communities to create a social persona people will want to listen to."

Social Chemistry: It's Not That Difficult to Build

They key to building a successful social chemistry involves growing your presence organically. Focus on what matters most to your practice and use your digital and IRL communities to create a social persona people will want to listen to. Taking the time to engage in meaningful conversations and deliver educational content yields a following that truly trusts and values your opinion. These followers will become your biggest advocates, and will share and recommend your business to their trusted circles. **W**



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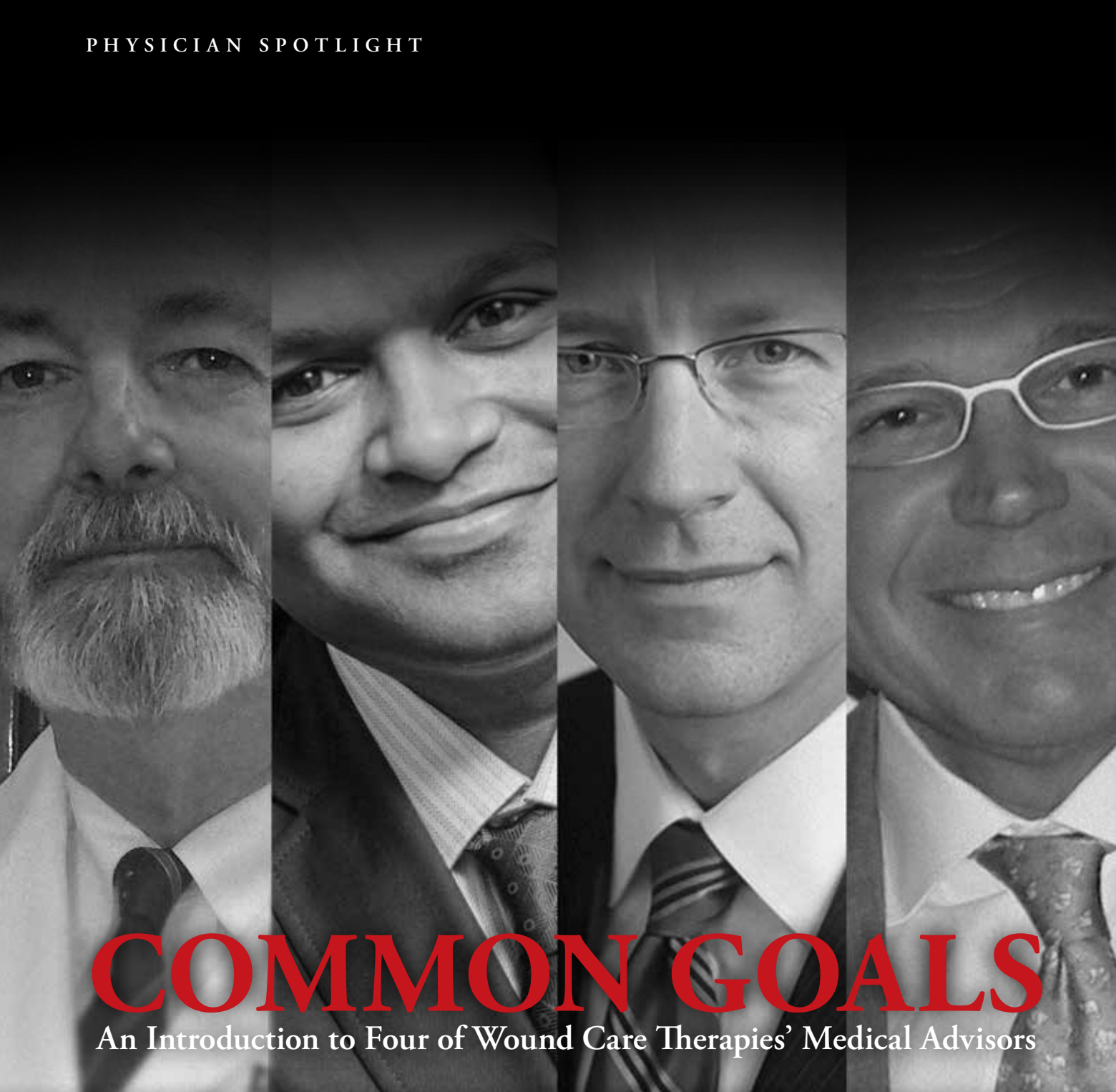

COMMON GOALS

An Introduction to Four of Wound Care Therapies' Medical Advisors

Wound Care Therapies is very proud of our medical advisory board members. We asked four of our outstanding doctors to share their backgrounds, what they feel are the main challenges facing wound care therapy today, what advancements they feel have positively affected or shown promise in wound care, and how they feel their voice in Wound Care Therapies can help to advance the specialty.

Undoubtedly, there is a common theme among all of our advisors on the immediate challenges to advancing wound care. We have also learned that there is a running belief that a multidisciplinary approach will advance comprehensive education and overall outcomes. What follows are biographical information on each physician, and their answers, in their own words.

Cornelius "Neil" Michael Donohue, DPM, FACFAS

Dr. Donohue received his BS from Drew University and DPM from the Temple University School of Podiatric Medicine. He is the Medical Director at the Comprehensive Wound Healing Center at Roxborough Memorial Hospital in Philadelphia, PA, and is the Atlantic Zone Medical Director for Healogics.

Dr. Donohue is the President and Founder of the World Walk Foundation which, since 1996, has been developing clinical mission teams, academic curricula, and international symposia for wound prevention and healing. The foundation has also placed a heavy focus on diabetes and amputation prevention. World Walk was featured in an episode of PBS TV's *The Visionaries*, which profiled the foundation's work in Philadelphia and Venezuela (a link to this episode is available at the end of this article).

"The model must include creating trained offspring of ourselves among the in-country caregivers, who then teach the next generation in their country."

WCT: What led to your practice of wound care therapy?

I began practicing in 1979 after foot and ankle surgical residency training. Early on in my practice, I began to receive wound care patient referrals from many physicians in the Philadelphia area, and I continued to integrate wound healing into my foot and ankle practice for the first 17 years of my practice.

In 1996, I had an opportunity to join a group of primary care physicians, nurses, physical therapists, an ER physician, a plastic surgeon, an optometrist, and an obstetrician-gynecologist who were headed to Peru to assist the many people who have diseases below the knee, such as pediatric clubfoot deformities, deformities from cerebral palsy, chronic wounds, diabetic wounds, osteomyelitis, traumatic wounds, and mycetomas from fungal infections.

After that mission, I realized two things: The first was that I wanted to do wound healing full-time in my practice. The second, was that I wanted to start my own 501(c)3 non-profit foundation, and that is how World Walk was started. Over the years, the foundation has taken me to countries like Cambodia, Thailand, China, Mexico, Jamaica, Haiti, Belize, Brazil and Venezuela. Each country and each medical and surgical community taught me many things that I slowly built into the World Walk model, which we eventually called the "Teaching the Teachers" model. We soon discovered two basic principles, particularly regarding the increase in diabetic ulcers and amputations worldwide. The first was that there is too much acceleration in diabetic lower extremity pathology to think that wound expert teams from the developed world could solve the problem alone without partnering with and educating the local medical and surgical communities. The model must include creating trained offspring of ourselves among the in-country caregivers, who then teach the next generation in their country. One concept, the "100^3" model, means that if I commit to train 100 wound caregivers in my lifetime, and each of those trainees commit to train 100, by the third generation there will be 1,000,000 trained wound caregivers—all beginning with that one committed clinical educator.

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The second principle, particularly regarding the diabetic foot, is that there needs to be a new model of training and collaboration between the primary care community and the surgical specialists in a given country in order raise the bar of surgeon and PCP knowledge about the diabetic foot. This includes understanding what PCPs can heal at the rural public health center level, as well as an understanding of the importance of timing in getting the diabetic patient with a surgical wound to the nearest, properly-trained surgeon in a timely manner. This model, combining a new level of surgeon-PCP education and communication, needs to be studied to see if it can work well enough to be one of the keys to reducing diabetic amputations, i.e., creating a "Wagner Shift" (from more severe to less severe diabetic ulcers) in any given diabetic population (See World Walk *Teaching the Teachers* Model and *Wagner Shift* [PowerPoint] at *www.worldwalkfoundation.org*).

WCT: Please provide some background on your current practice.

After Peru, I handed over my foot and ankle practice to my partners—one of whom is now successfully running our three-year podiatric surgical residency program at Roxborough Hospital in Philadelphia—and began to develop a full-time practice in wound healing, I balanced my private office-based wound practice by joining several hospital-based wound centers; and now, for the past 10 years, have been full-time at the Roxborough Hospital Wound Center.

My partners and I make nursing home wound care rounds weekly, including educating the nursing and PT staff about wound prevention and modern treatment protocols. We are developing a Limb Preservation Program at our hospital, as well as an in-patient wound program, to complement our out-patient wound center at the hospital.

We have developed a Wound Nursing Council to build camaraderie, as well as educational and credentialing opportunities, among Philadelphia regional wound nurses from long-term care, home care, hospice care, wound centers and hospitals.

The nice thing about working in a full-time, hospital-based wound center is being able to easily admit individuals for in-patient medical and surgical wound management, as well as having access to patients who require emergency wound care.

"There still is a tremendous gap in the way caregivers manage wounds; that is, diagnosis and treatment."

WCT: What do you feel are the main challenges facing the practice of wound care therapy today?

One main challenge is consistency in the application of evidence-based clinical practice guidelines. There still is a tremendous gap in the way caregivers manage wounds; that is, diagnosis and treatment. Often, rather than relying on current wound healing science, there are anecdotal and experiential justifications for their protocols. A good example of this is the low percentage of DFU caregivers who use Total Contact Casting, even though it is the gold standard of care. Similarly, the importance of managing the entire patient, along with their comorbidities and specific wound deficits that contribute to wound healing delays, must be considered and applied in every patient in a systematic way, e.g., diabetes, infection, PVD, protein-energy malnutrition, necrotic tissue (with proper debridement techniques), and lymphedema. This includes prevention and care of patients in all living venues, including hospital, home, long-term care/SNF.

Another challenge I see is bringing a logical approach to how wound products are marketed and chosen by individuals and institutions, with more consideration being given to clinical healing and cost-effectiveness data, as well as an evidence-based approach on how products are used in regards to specific wound etiologies.

There is a need for more wound preventive patient and community education, particularly as it relates to diabetic education classes.

"We need to find a solution to the problem of wound prevention and care for uninsured patients, or those unable to pay for wound care."

We need to find a solution to the problem of wound prevention and care for uninsured patients, or those unable to pay for wound care. This includes the universal problem of bringing modern principles of wound healing education to caregivers in underserved populations, both domestically (Native America and inner cities) and abroad. We need new long-term strategies and commitments from both the public and private sector.

We also need to define what the concept of a "Limb Preservation Program (Team)" is, and how it can be deliberately superimposed on an out patient chronic wound program, because that doesn't happen by accident. In other words, I believe that too many people assume that a chronic wound program and a limb preservation program are the same thing. We know that is not true, but our responsibility is to educate wound caregivers about how a limb preservation program can only be successful if you begin with a credible, evidence-based CPG for prevention, diagnosis and treatment of acute and chronic wounds. A multidisciplinary team can be successful, not only with the right talent, but with the right commitment to communicate effectively and aggressively about limb-threatening wounds. It is a philosophy of communicating to decide in these cases who does what and in what order— medically, surgically, diagnostically and therapeutically. The implications to amputation prevention outcomes in wound centers seamlessly connected with a limb preservation program are well established and proven.

"Evidence-based clinical practice guidelines need to be universally applied as a background template when making these decisions..."

Another important concept is the universal need of "having a plan for healing," oftentimes assumed in every wound healing case, but mostly underserved in my opinion. In order to optimize healing trajectories and outcomes, it is important to encourage the continuous review of options for healing as the case progresses, including wound bed products, soft-tissue and boney (osteomyelitis) surgical and antibiotic therapy, vascular interventional needs and options, off-loading, nutritional assessment. This should also involve choices for closure, such as flaps and skin grafts (xeno-, allo- and autografts). Evidence-based clinical practice guidelines need to be universally applied as a background template when making these decisions, and there is need for a treatment course for cases where evidence is inconclusive, as in the case of Sickle Cell ulcers. This concept applies equally to the commonly-seen wounds, as well as the more complicated cases involving the at-risk limb.

Finally, the issue of inadequate hospitalization days for serious limb infection and wound treatments needs to be revisited and discussed. Conflicts are created by hospital administrations and payers due to problems with length-of-stay and DRGs.

WCT: Given your specialty background, what perspectives do you feel it brings to the advancement of wound care therapy?

I continue to promote and teach that consistency in education should be occurring in every hospital, wound center, nursing home and home care agency to continue to raise the bar of best practices in a clinical watershed. Monitoring prevention and healing outcomes, and encouraging continuing education in all of these institutions, will contribute to the advancement of a higher outcome-based standard of care.

"My nature as a teacher continues to want to build bridges among nurses, physicians, PTs and administrators..."

My nature as a teacher continues to want to build bridges among nurses, physicians, PTs and administrators so that they understand the importance of sharing wound healing information and developing a common strategy for wound prevention. These relationships, and the information that comes from them, can be used as a platform to optimize healing outcomes in a given community of wound caregivers.

WCT: What recent advances or studies that you know of or are participating in are you excited about with respect to advancing/the advancement of the treatment of wounds?

I am an investigator for a DFU-Stem Cell-HBO study with Stephen Thom, MD, PhD, at the University of Pennsylvania and the University of Maryland School of Medicine. My podiatric surgical residents participate in this research at my hospital.

The addition of a wound telemedicine app, the WoundTool, to our World Walk model, is an exciting opportunity to improve healing outcomes and amputation prevention. I will announce a pilot study for this system in Philadelphia, as well as in Jamaica, Belize and Puerto Rico

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in late March at the 20th Annual International Diabetes Conference in Ocho Rios, Jamaica.

We are developing an interactive wound blog called WoundThink in order to provide a participatory forum for wound caregivers to learn from each other. This will serve as a vehicle to keep raising the bar on best practices in wound care, as well as a platform for discovering where there may be a misunderstanding of certain wound healing principles among wound caregivers. That can then guide remedial education, both on a small or large scale.

Additionally, we are interested in developing a wound registry specifically for the less common or intractable type wounds, such as those from Sickle Cell Disease or etiologies like Pyoderma Gangrenosum (PG), Necrobiosis Lipoidica Diabeticorum, vasculopathies and vasculitide. The registry will provide an information-sharing forum on diagnosis, treatments and new research. It will even create opportunities for collaborative research. We think that a registry will allow for the development of a "community" of specialists who can share successes and failures among a larger number of similar (etiology) cases. These professionals will have the ability to collectively review what the literature supports and what is missing in the research literature, and also create more incentive for collaborative research. It too would seem logical that a wound registry can assist with the fine-tuning of CPG's for etiologies like PG, Sickle Cell ulcers, etc. Ultimately, this system will improve diagnostics and healing outcomes for patients with these difficult and oftentimes intractably painful wounds.

WCT: In what ways do you see using the magazine as a forum to advance the knowledge base and communications within the wound care community?

I envision WCT encouraging a broad base of physician, nursing and physical therapy contributions (for example those specializing in lymphedema), to a series of articles on day-to-day challenges for all wound caregivers, such as managing lymphedema in patients who cannot apply lymphedema stockings, the problems of off-loading and compliance in the DFU patient, and creating awareness about advanced technologies like HBO, xenografts and allografts as they may contribute to difficult-to-heal wounds.

"WCT can become a powerful vehicle for introducing new technologies..."

WCT can become a powerful vehicle for introducing new technologies (e.g. wound telemedicine systems), some of which have built-in cost-effectiveness and quality-of-life analytics that, in turn, provide both clinical information for the remote wound caregiver as well as data that becomes valuable to public and private insurance carriers, and institutions such as nursing homes, home care agencies and hospitals. The tools that come with these technologies help wound care professionals determine which products and treatment protocols are most cost-effective.

WCT has a perfect opportunity to profile the wound prevention and healing needs of underserved populations, both domestically and internationally. Maybe a group of wound care volunteers could eventually be sponsored by WCT, with the goal being to bring the best wound practices (clinical practice guidelines) to the wound prevention and healing leadership in a particular country. Hopefully, wound telemedicine technology will soon be available to augment the work of such mission teams.

WCT: Is there anything you would like to add?

I would like to say that I am honored to be part of this dynamic, innovative and forward-thinking wound publication. It offers many opportunities to impact the quality of wound care, including new product reviews, research idea development and new technologies that seem to be appearing at an accelerated rate. Thank you for this opportunity.

"WCT has a perfect opportunity to profile the wound prevention and healing needs of underserved populations, both domestically and internationally."

Raghu Kolluri, MD, RVT, FSVM

Dr. Kolluri received his MS degree in Physiology from Penn State University and graduated medical school from the Armed Forces Medical College in India. He completed his Internal Medicine Residency at Riverside Methodist Hospital in Columbus, Ohio and his Vascular Medicine Fellowship at the Cleveland Clinic.

Dr. Kolluri is currently the Director of Vascular Medicine for OhioHealth System and Riverside Methodist Hospital in Columbus, and holds the positions of Treasurer and member of the Executive Board for the Society of Vascular Medicine. He is the Co-Founder and Director of The VEINS conference. He is on numerous committees for the American Board of Vascular Medicine, American Board of Venous and Lymphatic Diseases and Rethink Varicose Veins. He served on scientific session program committees for the ACC, SVM, SCAI, ACP and TCT meetings. Dr. Kolluri also serves on the Editorial Board of *Vascular Medicine*.

WCT: What led to your practice of wound care therapy?

Since completing my fellowship, I have continued to practice all aspects of vascular medicine, including medical management of arterial disease, venous disease, lymphatic diseases, thrombosis, hypercoagulable states, vascular ultrasound and vascular wound care. I also perform superficial venous interventions.

"Wound care therapy is fun, fastpaced and a gratifying aspect of my vascular practice."

Wound care therapy is fun, fastpaced and a gratifying aspect of my vascular practice. I get to apply my internal medicine skills in treating these patients, as well. I love to see chronic wounds heal once appropriate arterial and/or venous therapies are performed and appropriate wound care is provided. Several patients are also diagnosed for the first time in the wound clinic with other non-vascular disorders such as CHF, sleep apnea, diabetes, thyroid disorders, connective tissue disorders and gout, to state a few.

Wound healing makes an incredible difference in patients' lives. I strive to see that big smile on a patient's face when the wound finally heals!

WCT: Please provide some background on your current practice.

My day-to-day work is with a group of nationally renowned peripheral vascular specialists. We take care of patients with complex vascular problems referred to our tertiary referral center. As a team, we provide a gamut of services that range from treatment of pulmonary embolisms, critical limb ischemia, vein ablations, complex thrombosis and wound care. A team of multispecialty clinicians provides comprehensive care, including hyperbaric oxygen therapy for wound patients in our Critical Limb Center.

"A main challenge is a knowledge gap. For example, there seems to be a knowledge gap in the work up and assessment of underlying vascular issues by wound care specialists without vascular background."

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WCT: What do you feel are the main challenges facing the practice of wound care therapy today?

A main challenge is a knowledge gap. For example, there seems to be a knowledge gap in the work up and assessment of underlying vascular issues by wound care specialists without vascular background. Likewise, very few interventionalists have sound knowledge of appropriate local wound care after performing the vascular intervention. A wound care center model works best as we can consult in parallel with other specialists on the panel.

WCT: Given your specialty background, what perspectives do you feel it brings to the advancement of wound care therapy?

The uniqueness of my specialty to wound care comes in the form of thrombosis expertise and vascular expertise. I am able to accurately diagnose and treat the underlying arterial, venous, thrombotic and lymphatic diseases, while providing wound care to these patients.

"It is a relief to see that the contemporary clinical trials for Critical Limb Ischemia have started using wound healing as a primary or secondary end point."

WCT: What recent advances or studies that you know of or are participating in are you excited about with respect to advancing/the advancement of the treatment of wounds?

Critical limb ischemia trials have long used "amputation-free survival" as an end point, which used to frustrate me quite a bit, as patients don't care about that end point. All they want to know is whether a specific therapy will heal their wound or not. It is a relief to see that the contemporary clinical trials for Critical Limb Ischemia have started using wound healing as a primary or secondary end point. We participate in several of these trials, and I am also on data safety committees. Additionally, I am excited to participate in the Actitouch trial, for the assessment of a portable pneumatic compression device to treat venous ulcers.

"Using WCT as a forum to spread knowledge in an informal manner and to showcase clinically relevant topics and data is a great opportunity."

WCT: In what ways do you see using the magazine as a forum to advance the knowledge base and communications within the wound care community?

On average, one citation is added per minute to PubMed Central. It is time consuming and near-impossible to stay current in our respective fields. Using WCT magazine as a forum to spread knowledge in an informal manner and to showcase clinically relevant topics and data is a great opportunity.

Robert B. McLafferty, MD

Dr. Robert McLafferty earned his undergraduate degree in biology from Boston College in 1986 and his medical degree in 1990 from the University of Vermont. He completed his residency in general surgery and fellowship in vascular surgery at Oregon Health Sciences University in 1998. Dr. McLafferty is certified by the American Board of Surgery in general and vascular surgery, and is certified as a Registered Vascular Technologist.

Dr. McLafferty is the Chief of Surgery and Co-director of the Operative Care Division for the Portland VA Medical Center in Portland, Oregon. He serves as the Professor of Surgery in the Division of Vascular Surgery at Oregon Health and Sciences University in Portland, and served as a Professor in the Division of Vascular Surgery in the Department of Surgery at the Southern Illinois University School of Medicine.

He offers specialty medical services in operative and non-operative treatment of arterial, venous and lymphatic diseases, with a special interest in the treatment of lower extremity occlusive disease, complex aortic aneurysm disease, carotid disease, venous disease and Raynaud's Syndrome. In addition, Dr. McLafferty offers treatment using endovascular techniques such as angioplasty to improve walking and stents for aortic aneurysm disease. His research interests are in the natural history of peripheral arterial and venous diseases, vascular disease treatment outcomes, education, economics and epidemiology. He has numerous publications in peer-reviewed journals and textbooks, and is also treasurer for the Venous Disease Coalition.

Dr. McLafferty's memberships include the American College of Surgeons, Society for Vascular Surgery, Alpha Omega Alpha Medical Honor Society, American Venous Forum, Society for Clinical Vascular Surgery, International Society for Vascular Surgery, Society for Vascular Ultrasound and American Medical Association.

WCT: What led to your practice of wound care therapy?

In addition to my busy clinical practice while at Southern Illinois University, I was asked to be the Medical Director of the St. John's Regional Wound Care Center, which began in 2006. I helped direct the center and also provided one-half day of clinic per week.

WCT: Please provide some background on your current practice.

As the Chief of Surgery at the VA, I oversee our wound care center and work with the entire team to improve and integrate our wound care in such a way that podiatry, vascular surgery and prosthetics are better integrated. In addition to a more administrative focus, I continue to have a general vascular surgery practice.

"I feel the main challenges in wound care today are in the consistency of care, and getting patients to wound care centers sooner."

WCT: What do you feel are the main challenges facing the practice of wound care therapy today?

I feel the main challenges in wound care today are in the consistency of care, and getting patients to wound care centers sooner. I also believe there needs to be more specialty integration with wound care centers.

WCT: Given your specialty background, what perspectives do you feel it brings to the advancement of wound care therapy?

There are many procedures in vascular surgery that can be done to improve arterial and venous physiology, hence healing wounds faster. These generally are not well understood by traditional wound care doctors. I believe that vascular surgeons should be more integrated in these patients' care.

"I believe that vascular surgeons should be more integrated in these patients' care."

WCT: What recent advances or studies that you know of or are participating in are you excited about with respect to advancing/the advancement of the treatment of wounds?

I think the best thing is utilizing clinical practice guidelines in a wound care center that leads to advancing the healing process by all different mechanisms. This cannot be a piecemeal.

"Wound Care Therapies magazine can help bring awareness to all specialties that are involved with wound care, both centrally and peripherally."

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WCT: In what ways do you see using the magazine as a forum to advance the knowledge base and communications within the wound care community?

Wound Care Therapies magazine can help bring awareness to all specialties that are involved with wound care, both centrally and peripherally. It can also help with education and advocacy.

Oscar M. Alvarez, PhD, CCT, FAPWCA

Dr. Oscar M. Alvarez is a graduate of the University of Dayton in Ohio, with a BS in Pre-Med and BA in Chemistry. He received his MS in Physiology and PhD in Biochemistry from Rutgers University. He then went on to complete his post-doctoral training at the University of Miami School of Medicine in the Department of Dermatology in 1982.

Dr. Alvarez has been the Director of the Center for Curative and Palliative Wound Care at Calvary Hospital Inc. in Bronx, New York since its inception in 2004. He leads a team of physicians, podiatrists and CWCNs who have vast experience specializing in the treatment of patients with chronic wounds caused by complications associated with chronic venous insufficiency, diabetes, cancer, peripheral vascular disease and other illnesses. As an integral part of Calvary's mission, the Wound Care Center's multidisciplinary approach addresses each patient's physical, emotional and spiritual needs.

Dr. Alvarez has been the recipient of more than 70 research grants and awards, which include a National Institute of Health Training Award to study dermal-epidermal interactions during wound repair, and a NIH/NIDDK-funded U.S. Army Medical Research and Development Command Award to study epidermal migration in partial thickness wounds and emotional distress, as well as wound healing in diabetics. He holds patents in five wound care applications.

Dr. Alvarez serves as chairman of FRAIL (For the Recognition of the Adult Immobilized Life), a panel seeking solutions for skin-related complications of adults with chronic illness, and as a member of SCALE (an expert group to build a consensus proposal on Skin Changes At Life's End). He also served as a member of the Agency for Health Care Policy and Research (AHCPR), a panel for guideline development in the prevention and management of pressure ulcers.

Dr. Alvarez has authored more than 100 peer-reviewed papers, chapters and patents relating to wound care. He is a section editor for *Palliative Wound Care* and on the editorial advisory board of the journal, *Wounds.*

WCT: What led to your practice of wound care therapy?

Before joining Calvary, my career included the development and start-up of University Wound Care Centers LLC, four out-patient wound care centers located in New York and New Jersey. I was assistant Professor in Biochemistry at Cornell University School of Medicine and Assistant Professor of Dermatology at Rockefeller University. I also worked with industry as Director of Clinical Services for Support Systems International in Charleston, SC and Director of Wound Care at Johnson & Johnson Patient Care in New Brunswick, NJ.

"Two primary challenges are that physician education and board certification are still not in place."

WCT: What do you feel are the main challenges facing the practice of wound care therapy today?

Two primary challenges are that physician education and board certification are still not in place. Also, I believe that currently the pay-per-visit model is an incentive not to heal, and that pay-for-performance is the future and forthcoming.

Further, most wound care center franchises encourage a procedure-driven practice to increase profitability and perform way too many sharp surgical debridements.

Our specialty needs to address the difficulty in getting advanced wound care modalities reimbursed.

"...there is a need for the FDA to acknowledge endpoints other than complete wound closure for product approval."

Finally, there is a need for the FDA to acknowledge endpoints other than complete wound closure for product approval. No other medical discipline or specialty is held to the standard of complete cure for product approval and reimbursement.

WCT: Given your specialty background, what perspectives do you feel it brings to the advancement of wound care therapy?

My focus is in education and evidence-based wound care, so I put an emphasis on involvement and support of reasonable clinical trials that are consistent with the real-life setting of chronic wounds. My wound care training and concepts for healing are medically based and not surgical in nature. Although surgical procedures are a critical part of wound care, they should not guide the healing process. The majority of wounds can heal medically.

WCT: What recent advances or studies that you know of or are participating in are you excited about with respect to advancing/the advancement of the treatment of wounds?

There are several, including cell therapy, infection/microbiome and diagnostics. Also, better evidence and quality measures generated by more data from wound care-based electronic health records and charting, and innovations in vascular medicine and surgery.

"I view the Internet and print-based WCT as a medium of open exchange and open access for wound healing communication from all avenues, including science, industry, patients and providers."

WCT: In what ways do you see using the magazine as a forum to advance the knowledge base and communications within the wound care community?

I view the Internet and print-based WCT as a medium of open exchange and open access for wound healing communication from all avenues, including science, industry, patients and providers.

Working together for Our Future

The challenges of advancing wound care therapies are great, but the experience in and the determination of the physicians on our Advisory Board to improve the treatment of wound care delivers reassurance that through a collective voice these challenges can be overcome via the development of cohesive standards, improved models for patients and the advancement toward ABMS certification. Combined with the abundant talent of the physicians, nurses and clinicians who dedicate their careers to the treatment and advancement of wound care, Wound Care Therapies could not be more excited or honored to have these doctors leading the discussion for these topics. It is our mission to serve as an avenue for advancing education and proven new technologies, delivering a forum for improved dialogue between the specialties in the field and delivering sound advice through our expert panel of medical advisors. **W**

Links:

Roxborough Comprehensive Wound Healing Center: http://www.roxboroughmemorial.com/Services/Wound-Healing-Center.aspx

World Walk Foundation: www.worldwalkfoundation.org

PBS TV, The Visionaries, in Philadelphia and Venezuela: http://vimeo.com/35953987

OhioHealth System: https://www.ohiohealth.com/

Riverside Methodist Hospital: https://www.ohiohealth.com/riverside/

Society of Vascular Medicine: http://www.vascularmed.org/

The VEINS Conference: http://www.theveins.org/

VA Hospital, Portland OR: http://www.portland.va.gov/

Oregon Health and Sciences University: http://www.ohsu.edu/xd/

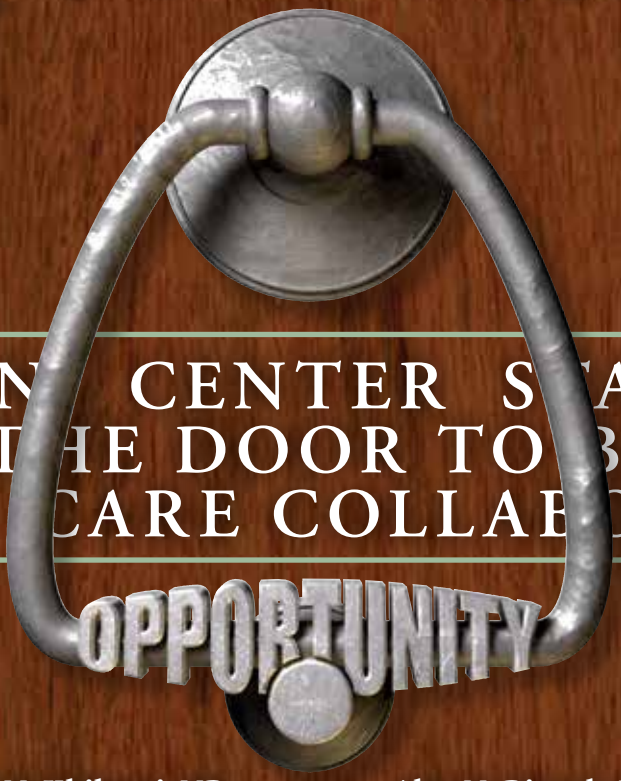
Venous Disease Coalition: http://vasculardisease.org/venousdiseasecoalition/

Center for Curative and Palliative Wound Care: http://www.calvaryhospital.org/site/pp.asp?c=ktJUJ9MPIsE&b=3226249

FRAIL: http://www.expertconsultbook.com/expertconsult/ob/book.do?method=display&type=bookPage&decorator=none&eid=4-u1.0-B978-0-323-06575-7..00045-6--s0065&isbn=9780323065757

OPPORTUNITY KNOCKING

NEW VEIN CENTER STANDARDS OPEN THE DOOR TO BETTER WOUND CARE COLLABORATION



Neil M. Khilnani, MD
Associate Professor of Clinical Radiology
Weill Cornell Medical College

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Weill Cornell Medical Center, New York, NY

Alan M. Dietzek, MD, RPVI, FACS
Clinical Associate Professor of Surgery
University of Vermont College of Medicine

Chief, Section of Vascular & Endovascular Surgery
Danbury Hospital, Danbury, CT

In the 2014 Winter issue of VEIN Magazine, Neil M. Khilnani, MD, wrote about the newly implemented Intersocietal Accreditation Commission (IAC) standards for Vein Center Accreditation. While the guidelines focus on the minimum requirements for superficial venous care, we wanted to know more about how, and how much, wound care is included. We asked Neil, Secretary, and Alan M. Dietzek, MD, RPVI, FACS, President-Elect of the IAC Vein Center Board of Directors, to give us their thoughts on some ways the board envisions these two specialty fields working together to grow the model.

WCT: Give us a quick review of how the IAC Vein Center Accreditation came to be.

IAC: The treatment for chronic lower extremity venous disease can now be managed in most patients with minimally invasive outpatient procedures that are performed using immediate ambulation and no sedation. This has been transformative for patients, but has introduced new and less readily apparent risks for these same patients. The care is generally provided in outpatient offices without the benefit of the established protocols and oversight of accepted hospital quality controls. In addition, providers from multiple specialties, some of whom had no prior background in vein disease, are increasingly involved in providing vein care. These changes in the delivery of vein care have contributed to a wide variability in practice standards in our communities.

With this in mind, the leadership of several venous societies had their first conversations about developing a voluntary vein care/vein center accreditation in 2010. Soon thereafter, the IAC was selected to oversee the development of standards for vein care and to administer the accreditation process. This organization has had over 20 years of success in forming consensus standards amongst multidisciplinary board memberships, and possessed the required structure and oversight resources and capabilities. They have 36 different sponsoring medical societies, including the ACP, AVF and SIR.

WCT: How were the standards set for accreditation?

IAC: The IAC Standards for Vein Center Accreditation for Superficial Venous Evaluation and Management were developed based on minimal standards for quality by an inclusive multidisciplinary group of vein experts who address all aspects of superficial venous disease. The final version of these Standards was approved in September 2013, and sites began to apply for accreditation in November 2013. The accreditation is a voluntary means by which a center can demonstrate to referring physicians and patients its commitment to quality venous care, and thereby distinguish itself from other practices. It is hoped that this accreditation will elevate the standard of vein care and, thus, become a benchmark by which patients and potentially their insurance carriers determine which providers are offering the type of care they need and want to purchase.

WCT: What are the standards when a patient presents a chronic venous ulcer?

IAC: Venous leg ulcers (VLU) are a less common manifestation of chronic venous disorders. Still, VLU are quite prevalent given the enormous number of patients with venous disease. The IAC Vein Center Board recognized the heterogeneity in wound care skills in the venous community. Although some vein care physicians feel comfortable managing VLU, a large fraction of skilled providers work in partnership with physicians in other disciplines who have special expertise in wound care.

The IAC Vein Center Standards require each Vein Center to be able to recognize a patient with a VLU, to perform or refer the patient for the appropriate diagnostic venous and arterial testing in an accredited facility, and to have a protocol to initiate treatment with compression. Wound care skills beyond the initiation of compression were not felt to be sufficiently prevalent in the venous community to require all centers to have them. Patients could continue to be managed in the Center; for those that do not offer wound care beyond this level, the Standards require the Center to have a protocol for referral of patients with VLU to an appropriate provider for treatment. It is expected that when a Vein Center refers a patient to an outside physician or wound center, the Vein Center will follow the care of the patient and maintain documentation of the patient outcome. This can be accomplished by archiving documentation from the wound center or by seeing the patient in follow-up at the Vein Center.

WCT: With the rise in prevalence of chronic wounds, what plan does the IAC Board have in mind for the future of Vein Center Accreditation when it comes to the ability to treat these types of wounds?

IAC: Ideally, the Vein Center Board would require all of our Vein Center colleagues to possess more advanced management knowledge and skills so that venous leg ulcers could be managed entirely within the Center.

However, even with an advanced knowledge of arterial and venous disease, many vein specialists recognize that wound care is a specialty onto itself and the discipline requires expertise that would be difficult to expect of every vein care provider. Certainly, an understanding of the pathogenesis, evaluation and the basic management of VLU is something every vein care practitioner should know.

The members of the IAC Board would welcome recommendations from the wound care community for evidence-based practices that we should consider requiring of our Vein Centers to be facile with to elevate the standards of care for venous wounds in our communities. We also ask the wound care community to develop a resource that we could endorse that would allow vein care practitioners to identify qualified wound care providers in their region with whom they could work to benefit patients with VLU. W

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Medical Professionals Need to Embrace Health Advocacy as a New Discipline of Medicine

by Ibrahim G. Eid, MD, FACS
Chief, Primacare Center for Vascular Diseases, Fall River, MA and
Chairman, Department of Surgery, Saint Anne's Hospital, Fall River, MA

It is time for the medical profession to embrace health advocacy as a new discipline of medicine. It is a fact that when patients seek second opinions in cases of major issues like cancer or major surgery, the second recommendation is likely to differ from the original one in around 30 percent of the cases. In numerous studies about Decision Aid Support, patients given a brochure to read about their choices tend to opt out of surgeries at least 20 percent of the time. These studies were conducted in centers of excellence, where abuse and overutilization are assumed to be absent and the margin in a real-life deployment could be higher. Given third party credible education, patients often steer their care from the direction chosen by their treating physician.

It is naïve to think that financial gains are the only influence on a physician's recommendation. "High volume" physicians gain respect in the medical community and get direct and indirect power and other leadership roles in hospitals and medical groups. In addition, the "easy" cases which tend to produce good outcomes and happy patients are necessary for the statistics of the surgeon, as they provide the denominator over which complications are counted. It is these easy and safe cases that often may not be necessary to the care of the uninformed patient and that add to the inflated national health care bill.

One would assume that health care reform's pay-for-performance schemes and return of "capitation" from the back door could protect consumers and patients from non-necessary care, but this does not undo the incentives mentioned above. In fact, the opposite may be happening in some cases. Hospital chains are buying physician practices at unprecedented rates, and physicians are now incentivized to "feed" patients to the expensive hospital programs and "cost centers." In pure capitation models, patients may suffer from underutilization, as the system is now incentivized to reduce expenditures. In addition, health care systems are becoming contractually closed systems, and patients may never be informed about care options that may suit them better and that are outside of the network. The need for health advocacy has never been more acute.

It is disappointing that the medical profession has failed to recognize what businesses and industry have, since it is the profession society trusts to provide every citizen with the care that is best for him or her. Health advocacy is a billion-dollar industry serving employers, consumers and insurance companies alike, and has been populated by nurses, social workers, and now computer software, but rarely physicians. It lives in a parallel universe to the medical one, and this has consistently eroded its value. Many studies support what we all know: When patients are facing major health decisions, the most powerful source of decision making remains the physician, followed by friends and family.

Since there is a small likelihood that anyone would empower a patient to question his or her treating physician, it is the physician who should advocate for the patient by providing the knowledge the patient needs to make decisions—both on the medical level and the consumer level. The patient should understand that not all physicians and hospitals are created the same, and should be empowered to ask questions about medical choices. He or she should also feel comfortable to ask about a surgeon's or hospital's volume, outcomes, costs, participation in outcome registries and board certification/accreditation status.

Until health advocacy shapes up as a discipline of medicine, whereby a physician can dedicate time to learn the skills necessary to provide information support and get reimbursed separately to perform that important function, matching the right treatment to the right patient and the right setting of care will remain as accurate as a roll of a dice. W

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Academy of Physicians in Wound Healing

The 2nd Annual Physicians and Wounds Conference was held March 27-30 in downtown Philadelphia with an impressive program covering not only the treatment of wounds, but focusing upon the causes, as well.

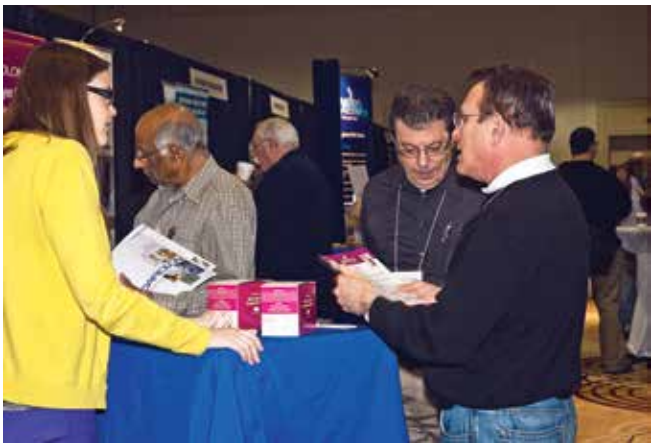
Executive Director Steven R. Kravitz, DPM, FAPWHc, FACFAS, states, "The APWH was developed to improve the quality of life for patients domestically and worldwide through physician and patient education, and in addition, to provide something that was previously missing – advocacy, as well as engaging in legislative initiatives involved in the delivery of healthcare from a physicians' perspective." According to Dr. Kravitz, there is no other organization that can provide as much attention to physician concerns as the Academy.

During the conference, the intent was for all registrants to meet like-minded practitioners. The program was offered with two distinct tracks. The Review and Refresher Course Track offered a full wound care certification preparatory course and a general overview of fundamentals for those who may be entering the field. The General Sessions Track incorporated different topics typically not found in other wound care meetings which are important for updating knowledge on diagnosing and managing the complex wound patient.

"We designed the program to provide key points that you can apply immediately upon returning to your practice," said Dr. Kravitz. "The end goal is for all of us to make the lives of patients easier and to help patients heal."

The General Sessions featured a wide range of informative presentations with panel discussions covering topics such as peripheral arterial disease, diabetic arterial disease, critical limb ischemia, drug-eluting balloons and stents, identifying non-vascular wounds, chronic venous disease and insufficiency, deep venous thrombosis management, and edema. In addition, several other presentations covered complex topics. Of note were presentations from Richard Bowen, PhD, on Cell Signaling in the Chronic Wound and

Philadelphia, the "City of Brotherly Love" the hosts 2nd annual Physicians and Wounds Conference



its Relationship to Growth Factors; Guido LaPorta, DPM, on DNA Typing of Infections; and Wayne Bakotic, DO, on Skin Lesions, Making the Diagnosis, and an Update on Malignancies. Afterwards, a Panel session on New Wound Technologies featured biofilm and biofilm management, hormone replacement therapies, and hydrokinetic fibers to manage bacteria, inflammation, and chronicity.

Pre-conference and post-conference optional courses rounded out the itinerary with presentations covering the latest in new research on compression therapy, bioburden and new methods for draining wounds, offloading principles and technologies, lymphedema diagnosis and management, pressure ulcers, and the Business of Wound Care which reviewed Medicare documentation, billing and coding, distributing wound care products and the concept of The Wound Healing Center of Excellence.

This information-packed program provided ample fodder for in-person discussions and take-away implementation for all in attendance. **W**

Steven R. Kravitz, DPM, FAPWHc, FACFAS

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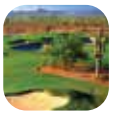

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CAROLON has been manufacturing anti-embolism stockings for more than 30 years. Millions of our American-made Carolon stockings, critical in helping in the prevention of DVT in surgical patients, have been sold and prescribed by physicians in more than 3,000 hospitals in the USA and more than 15 countries worldwide.

Now we're bringing the same quality and manufacturing expertise we've been providing in hospitals directly to your vein practice. Our Health Support Procedure Pak compression stockings, available in 20-30 mmHg and 30-40 mmHg are specifically designed to meet your patient's needs before and after vein procedures.

Each CAROLON Health Support compression stocking:

- **USES THE MOST TECHNOLOGICALLY ADVANCED FABRICS.**
  Every compression class of our stockings uses a different weight of fabric for effective therapy and maximum patient comfort – specific fabrics for specific compressions.
- **IS SHAPED TO FIT.**
  Our stockings are knitted to conform to the leg shape and applies accurate and comfortable compression with unique "Floating Heel" technology.
- **IS EASIER TO DON AND REMOVE.**
  We combine the lightest weight fabric possible for a specific compression class with shaping to fit, greatly enhancing patient comfort and compliance.
- **IS AVAILABLE IN A WIDE RANGE OF SIZES.**
  A correct fit means comfort, patient compliance and effective therapy.
- **OFFERS CERTIFIED COMPRESSION.**
  Our Procedure Pak compression stockings are tested stringently in-house and certified for compression by an independent hosiery testing laboratory, HTC.*
- **IS EASY TO CARE FOR.**
  Machine wash and tumble dry.
- **IS DISPENSER PACKAGED & COST EFFECTIVE.**
  Save space and money dispensing stockings in singles or pairs.

Trust the experts when choosing compression stockings for your vein practice - clinical experience, clinical quality, clinical packaging & clinical price. Contact us TODAY for a Sample & Price List.

CAROLON

Customer Service: 877.232.8825
Email: procedurepak@carolon.com

* Hosiery Technology Center, Hickory, NC