VOLUME 2 ISSUE 4 • FALL 2014

WOUND CARE THERAPIES

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If in fact there are 25 million people suffering from venous reflux disease and over 23 million going untreated, then why aren't physicians taking more care of this diseased population? My experience is that most people go untreated because they are not aware that an effective treatment solution is available for their symptoms. Most people don't understand that the symptoms they're experiencing are related to vein disease. Most referring physicians don't properly diagnose and refer venous reflux disease.

And most important – most physicians practicing phlebology don't know how to reach out and attract this population. *That's where I come in.*

As practice administrator for one of the busiest vein clinics in the country, I have:

- Crafted and implemented unique marketing strategies that created immediate results
- Grown the practice from one to four clinics and from $4m to $15m in revenues in less than 3 years
- Designed and published the company's business plan—achieving a negotiated private equity market value of $22m
- Ensured the company had state-of-the-art operations and financial management programs, compliance programs and clinical and business protocols

My comprehensive knowledge of strategic planning, working capital management, internal controls, systems design, and financial and business planning have been the foundation for the successful stimulation of many physician practices over the years. I welcome the opportunity to discuss how I can help you grow and operate your Vein Practice at levels you may have never dreamed of.

Mark T. Bower, CPA
Vein Management Solutions, LLC
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On the Cover

How can we ensure that the patient is not lost in a tug-of-war? Education may be the key.

VOLUME 2 - NUMBER 4

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Featured Doctor

Ball Hog

I'm a bit of a sports fan, and always have been. I grew up watching my brother play football, basketball, baseball and wrestling, so I'm very familiar with these "All-American" sports. In fact, I have my own fantasy football team where I'm the Grid Iron Maiden. My husband Tony is a serious sports nut, and during any professional sports season – which is always – I can be at serious risk of being a sports widow. I figured I would join in instead of the alternative of being alone—but my favorite sport to watch is basketball.

As a Southern Californian, I've been a Lakers fan for decades. And whether you like him or not, you have to admit that one of the greatest players ever to play the game is our own Kobe Bryant. Now, despite the fact that he's gotten himself into a bit of personal trouble here and there, no one can deny that he's a basketball phenom, and when he's in perfect condition, he rules the court. However, that's kind of the problem, isn't it? He rules the court. In short, he is a bit of a ball hog. If we need to score, he will do his best to make it happen. If we need to pick up the pace, he is the one behind the charge to do so. But what happens when he cannot make it happen? What happens when he holds on to the ball for too long? What are the consequences for the team?

In this issue of Wound Care Therapies, we discuss a similar concern with the issue of hesitation by primary care physicians in holding on to chronic wound patients for too long. What happens when a PCP truly feels he can handle a patient through his chronic wound care continuum, but is ill-equipped to handle the very real, very critical needs of a patient on the cusp of limb loss from that chronic wound? And more importantly, why is it that a PCP is hesitant to hand off the patient to a specialist? Obviously, there are many factors that contribute to this situation, and in our article *Referral Patterns of Primary Care Physicians for Acute and Chronic Wounds*, we discuss some solutions to addressing and, possibly even, alleviating this problem.

One of our newest medical advisors, Gregory Bohn, MD, premieres his first article in our new regular column, The HBOT Chamber. In this issue, Dr. Bohn educates us on advancing the practice of hyperbaric oxygen therapy. Another of our articles, *Having a Plan for Healing and the Fundamentals of a Comprehensive Community Limb Preservation Team and Program*, addresses many of the issues surrounding the very important and integral strategies involved in getting to the positive end-point of healing chronic wounds.

As you can see, our team members are eager to help involve all of the team members needed in winning the chronic wound game. Each is willing to give and take the ball, so to speak, and each is intricately involved in advancing the patient to a better quality of life.

As a part of this growing community, *Wound Care Therapies* is one of your team members in helping to bring all chronic wounds to the positive end of healing. We hope you agree that the editorial content we provide is relevant, reliable and realistic – we want to be your guide to improving the state of wound care and getting your team in perfect condition to rule the court… without being a ball hog.

Enjoy!

Jana Acciacca
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What's New in Our World of Wound

I usually come to you with some anecdote or insight about what we've put before you in the issue you're about to read. It's time for a different approach. Going forward, I would like to talk with you about our commitment to the treatment of chronic wounds and what that actually means.

Many of you may be unaware of our online focus to educate the public at large on the necessity of proper wound management. Our online portal, *WoundCareCenters.org*, helps guide the patient down the slippery rabbit hole of what to do next in their treatment path. This site is also meant to be a great tool in a treatment centers' program for branding their practice and linking directly to new patients. Our dedicated team works diligently to make sure we are providing patients with up-to-date content to assist in their treatment decisions, while making sure to offer the latest technologies available to centers so that they are able to get their message out to the community in need.

Also on our agenda is our continued support of educational events such as SAWC and Modern Wound Care Management. We can be found at many symposiums and conferences with our experienced team members, ready and willing to answer any questions you may have in regards to our publications or branding opportunities. We see these events as a very instrumental part of our strategy to support the wound industry and the patients that need them for treatment. These are also learning events for us as we continue to grow. They are opportunities to connect with you live and find out more about the pain points you are experiencing within your practices so we can come back to you with the solutions necessary to alleviate that pain. Additionally, they give us an opportunity to learn more about the advancements in chronic wound treatment so we can share that information via our online portal and this publication.

What remains the same in my letter to you is our sincere appreciation for you, our readers and advertisers, for embracing us as you have while we continue to make great strides in the world of wounds. We appreciate you and look forward to becoming part of your relied upon resources for treatment and practice improvements.

Best regards,

KL Springfield

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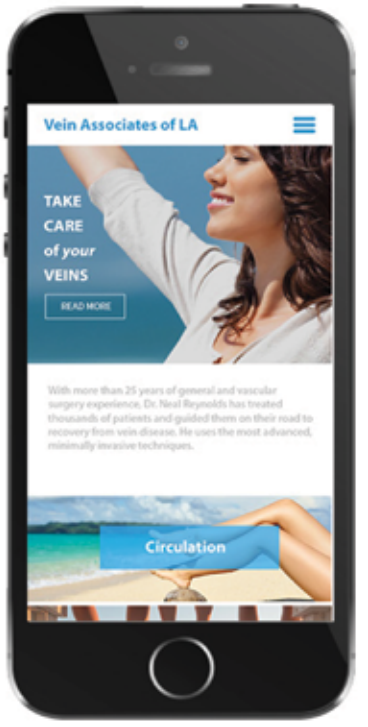

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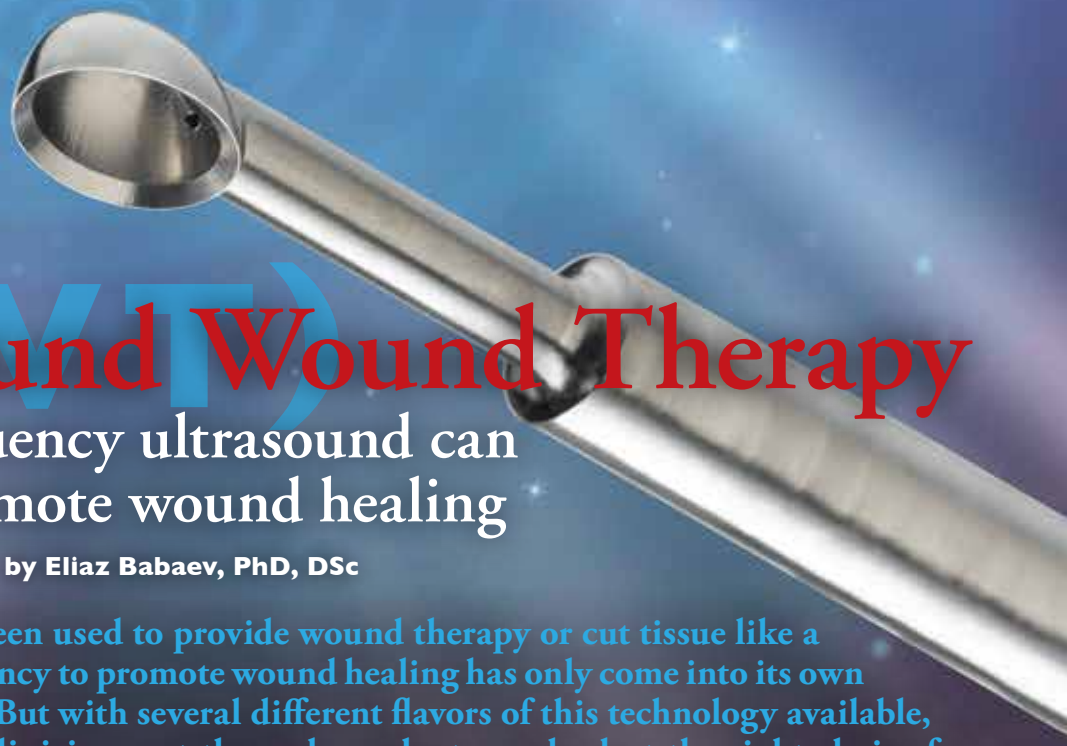

(UWT) Ultrasound Wound Therapy

How low frequency ultrasound can be used to promote wound healing

by Eliaz Babaev, PhD, DSc

While ultrasound has been used to provide wound therapy or cut tissue like a scalpel, using low frequency to promote wound healing has only come into its own in the last decade or so. But with several different flavors of this technology available, how does the modern clinician sort through, evaluate, and select the right choice for their patients, for their practice? A key factor is how Ultrasound Wound Therapy (UWT) will play a role in better patient experience, flexible modalities, and successful outcomes.

Let us break this down further that for active wound care, two factors contribute significantly to keeping the wound healing trajectory moving forward: (1) surgical/excisional (or sharp) debridement and (2) wound therapy (sometimes termed as maintenance debridement). The rationale, benefits, and results for sharp debridement have been well established in clinical literature, and using ultrasound wound therapy to accomplish sharp debridement just makes sense – like using a power tool, if for nothing else, to do the job of a manual tool more efficiently and effectively. But wound therapy (or maintenance debridement) is being understood more as the complementary approach to keep the wound healing and/or from falling into a chronic state and stalling out.

UWT devices should provide wound debridement and/or therapy that utilizes low frequency continuous or pulsed ultrasound directed to the wound surface and surrounding tissues via its various available contact applicator probe shapes; some probe shapes focus the energy towards the wound surface. Wound irrigation fluid (typically sterile saline) flows through the probe and exits through an opening within its specially shaped probe tip, minimizing splatter yet still serving as a coupling medium, coolant, wound lavage or flush, and topically treating the wound base.

Then ideally, Ultrasound Wound Therapy (UWT) should produce and deliver low frequency ultrasound used to promote wound healing via:

1. **Selective and non-selective dissection and fragmentation of soft and/or hard tissue:** This is an essential aspect of debridement in general.
2. **Surgical, excisional or sharp-edge wound debridement (acute and chronic wounds, burns) for the removal of nonviable tissue including but not limited to diseased tissue, necrotic tissue, slough and eschar, fibrin, tissue exudates, bacteria and other matter:** This is also an essential aspect of debridement in general.
3. **Cleansing irrigation and lavage of wound tissue (acute and chronic wounds, burns, diseased or necrotic tissue):** Irrigating the wound site serves to provide a coupling medium to more efficiently deliver ultrasound energy, cool tissue resulting from local endemic inflammation or exposed to motion and action of contact ultrasound, and wound lavage or flush to remove the remnants dissected and fragmented.
4. **Contact and/or non-contact maintenance debridement for the removal of debris, exudates, fragments, bacteria, slough, fibrin, excised or**

fragmented tissue, and other matter: UWT is topically dispersing therapeutic ultrasonic energy throughout the wound base to accomplish this.

5. **Preparing the wound bed for graft or other subsequent procedures using contact and/or non-contact techniques to achieve wound debridement:** One cannot say enough about advocating the benefit of accomplishing superior debridement and/or wound bed preparation as a precursor to skin graft application (or even other adjunctive treatment modalities), as it does little good for the patient if the skin graft is applied with less than optimal preparation of the tissue in the target area and may lead to one or more reapplications of skin graft(s)

Clinically, UWT should be specifically designed to maintain sufficient momentum throughout the wound management process for optimal healing and be the ideal choice for treating a variety of wounds, including:

- Pressure Ulcers
- Arterial Wounds
- Chronic Wounds
- Diabetic Foot Ulcers
- Compromised Surgical Wounds
- Fistulas
- Burns
- Biofilm
- Osteomyelitis
- Venous Insufficiency Ulcers
- Infected, Eczematous, Ulcerated or Devitalized Skin

In clinical use, the following types of irrigating solutions should be prescribed when using UWT:

a. Sterile 0.9% saline (which is widely available for purchase from medical suppliers)
b. Sterile de-ionized water
c. Other solutions approved for wound therapy or debridement

UWT should allow the clinician to debride wounds and manage wound care for patient population of any age with one or more wounds and/or that may also exhibit Diabetes Mellitus (DM).

Furthermore, UWT treatments have demonstrated results such as vasodilation and resolution of vasospasm resulting in increased blood flow (thermal effect), fibrolytic separation and debridement of denatured proteins, decreased bioburden (e.g. bacterial colonization) of adjacent peri-wound tissue as a result of the effects of cavitation, and stimulation of fibroblasts, macrophages and endothelial cells which augment healing.

Looking at just the economical side and not just the patient benefit or improvement in the level of standard-of-care, the increased scrutiny into the costs associated with providing affordable care as well as how effective that care is in terms of efficacy and efficiency belies that providers should be rigorously reviewing devices, processes, and methodologies in order to remain viable, let alone competitive, in the very near future. The increased proliferation of competitive sites providing care, i.e. from specialized clinics, express diagnosis sites, long term acute centers, and so on, coupled and/or enabled by social media and blogging, will only create highly contentious market forces driving patients to the best providers.

With all these factors and characteristics to consider, one obvious choice is Arobella Medical's Qoustic Wound Therapy System®, which has a well-established history of providing superior debriding process with its unique, patented, domed-shaped, sharp-edged Qoustic Qurette® probes. The Qoustic Qurette® probes give clinicians more control for gentle and selective volumetric removal of necrotic tissue while also providing therapeutic maintenance debridement by targeting focused low frequency ultrasonic energy through saline to the wound bed. It is this unique dual delivery of low frequency ultrasonic energy that optimizes the wound management process to successfully heal even the most difficult and challenging wounds; this is an especially important requirement for patients with chronic wounds that resist closure and/or healing under current standard-of-care.

In summary, Ultrasound Wound Therapy (UWT) definitely plays a role in better patient experience, flexible modalities, and successful outcomes, as well as identifying and evaluating the key factors for selecting the right choice of UWT for their patients and for their practice. While competing devices provide a sole source of action, i.e. either contact delivery of ultrasonic vibrations or non-contact delivery of ultrasonic energy, only the Qoustic Wound Therapy System® provides the dual action of contact delivery of ultrasonic vibrations and the noncontact and/or focused delivery of ultrasonic energy through its unique patented, dome-shaped, sharp-edged Qoustic Qurette® probes provides the dual treatment modalities of active wound care - (1) surgical/excisional (or sharp) debridement and (2) wound therapy. Ω W

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Optimizing *the* Impact

by Cornelius M. Donohue, DPM, FACFAS

In thinking about my role as medical director of *Wound Care Therapies Magazine*, it occurred to me that there are two main, first-generation goals that could optimize the impact of my work.

First, I would like to work with editors and writers to create a consensus "map" of what types of articles need to be written by listening to wound caregivers out in the field and among our readership. Every day, I talk to colleagues who are looking for information on many aspects of wound prevention, diagnosis and treatment that are simply not discussed in any significant detail in the literature. In this way, with this template, we can recruit the best writers to begin to fill in these gaps. Similarly, these discussions could also involve opinions about gaps in research on specific topics that could generate a new generation of studies by individual caregivers, or groups of partnering individual wound caregivers with similar research interests.

As one of the magazine staff who interacts with prospective writers, I am interested in discussing ideas and outlines for articles under consideration, as well as encouraging multiple-author article development, even with writers who have not worked with each other before. In this way, a new dynamic could occur, with increased quality of the article content—now having co-authors collaborating—coming from sometimes very different backgrounds of training, clinical experience and research. I envision WCT encouraging a broad base of physician, nursing and physical therapy (for example, those specializing in lymphedema) contributions to a series of articles on the day-to-day challenges of 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, growth factors, xenografts and allografts, as they may contribute to difficult wounds.

An interesting project under development is a survey of primary care physicians (PCPs) regarding an investigation to begin to understand the interests of PCPs in their own personal wound healing education, as well as their interests in using wound expert consultants for the benefit of their patients. The impact of information gained and analyzed by such a study would be considerable since it is continually validated that only 5%-8% of chronic wound patients—a percentage range that has remained relatively constant over the past several years—are ever seen by wound experts.

This topic is discussed in detail in this issue's article, "Referral Patterns of Primary Care Physicians for Acute and Chronic Wounds in the US—Would Educational Tools be Helpful?" It is complemented by a second article that discusses a new model for a comprehensive community limb preservation program and team, now including PCPs, their office staff, as well as the wound staff in SNFs, LTC, LTACs and home wound care, in partnership with the traditional team members made up of hospital medical, surgical, nursing and other hospital consultant specialists.


Dr. Donohue

Finally, I would like to say that I am honored to be part of this dynamic, innovative and forward-thinking wound publication, with many opportunities to impact the quality of wound care, including new product reviews, research idea development, with guidance to readers from many trusted wound experts in keeping a perspective on all of the new technologies that seem to be appearing at an accelerated rate.

Best regards –

Cornelius M Donohue DPM

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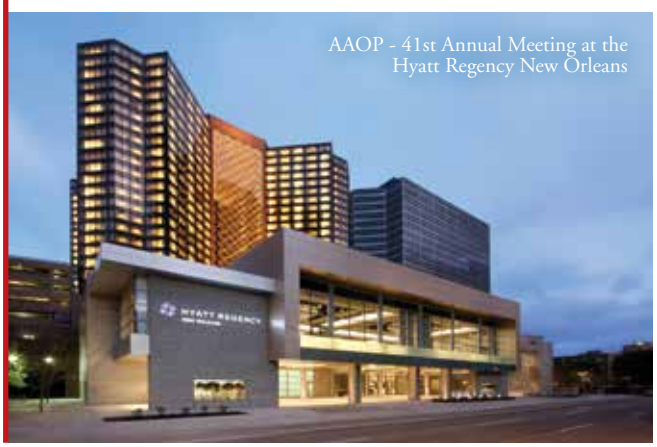
APTA's Combined Sections Meeting 2015 American Physical Therapy Association
TBD
Indianapolis, IN
www.apta.org

16-20 February, 2015
Emergency Medicine: An Evidence-Based Approach to Adult Care
Hyatt Sarasota on Sarasota Bay
Sarasota, FL
www.ams4cme.com/www/LiveSeminars/SEMLA-2920150216.aspx

18-21 February, 2015
AAOP – American Academy of Othotists & Prosthetists 41st Annual Meeting & Scientific Symposium
Hyatt Regency New Orleans
New Orleans, LA
www.oandp.org/meeting2015


AAOP - 41st Annual Meeting at the Hyatt Regency New Orleans

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

23-28 February, 2015
AAHPM & HPNA Annual Assembly American Academy of Hospice and Palliative Medicine & Hospice and Palliative Nurses Association
Pennsylvania Convention Center
Philadelphia, PA
www.aahpm.org

25-28 February, 2015
AVF Annual Meeting 2015
Palm Springs, CA
www.veinforum.org

1-5 March, 2015
The 33rd Annual Emergencies in Medicine Conference
Hyatt Escala Lodge
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emergenciesinmedicine.com/2015pcwinter

5-8 March, 2015
ENDO 2015 - Endocrine Society
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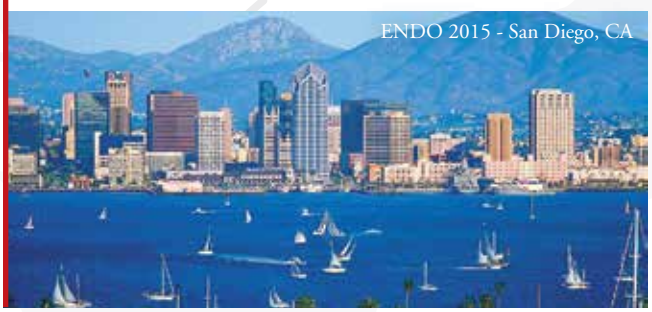
ENDO 2015 - San Diego, CA

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

21-27 March, 2015
USCAP Annual Meeting - United States & Canadian Academy of Pathology
John B. Hynes Veterans Memorial Convention Center
Boston, MA
www.uscap.org/meeting/70313

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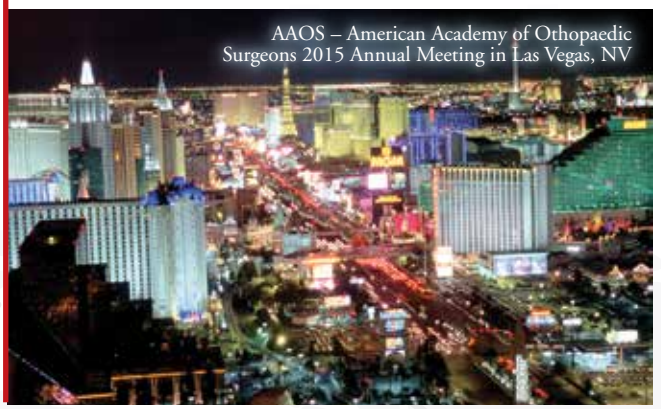
www.aaos.org


AAOS – American Academy of Othopaedic Surgeons 2015 Annual Meeting in Las Vegas, NV

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

6-10 April, 2015
Hospital Medicine: Management of the Hospitalized Adult Patient
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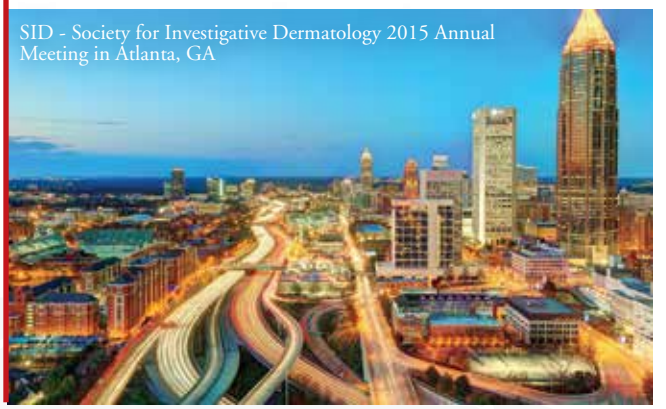
www.ams4cme.com/www/LiveSeminars/SEMLA-2920150406.aspx

20-24 April, 2015
Emergency Medicine: Practicing According to the Evidence
Hyatt Sarasota on Sarasota Bay
Sarasota, FL
www.ams4cme.com/www/LiveSeminars/SEMLA-2920150420.aspx

21-24 April, 2015
American Burn Association 47th Annual Meeting
Hilton Chicago
Chicago, IL
www.ameriburn.org/47thAnnualMeeting.php

29 April - 3 May, 2015
Symposium on Advanced Wound Care Spring
Henry B. Gonzalez Convention Center
San Antonio, TX
www.sawcspring.com

6-9 May, 2015
SID 2015 Annual Meeting - Society For Investigative Dermatology
Hilton Atlanta
Atlanta, GA
www.sidnet.org


SID - Society for Investigative Dermatology 2015 Annual Meeting in Atlanta, GA

12-16 May, 2015
2015 SAEM Annual Meeting - Society for Academic Emergency Medicine
Sheraton San Diego Hotel and Marina
San Diego, CA
www.saem.org

13-15 May, 2015
25th Conference of the European Wound Management Association
ExCeL London
One Western Gateway, Royal Victoria Dock
London, England
www.ewma.org

3-6 June, 2015
APTA's NEXT Conference and Exposition
National Harbor, MD
www.apta.org

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

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.

Content Marketing

Establish Trust and Grow Your Practice

by Bettina Kina

The way patients use the Internet to research and find a vein care specialist is constantly changing, and whether we like it or not, as participants in the digital marketing space we must embrace these changes with open arms. A decade ago, the secret to digital success was searching, and if we look at the past few years, social media has reigned supreme. Today, we are once again experiencing a shift in the industry, and content is making its way into everyone's media strategy. Quality content has always mattered, but now it has rightfully returned to being the key to success. If you work with a marketer, or have taken on the task of branding your practice (kudos to you!), you have heard content marketing come up more and more frequently. By definition, content marketing is not complicated; it is a simple concept rooted in using content to communicate with your core audience. Knowing what to say that will engage patients and drive results is where it becomes challenging.

"A patient's journey to finding a doctor has changed over the past decade, and the rapid evolution of social and digital technologies have made information abundant. Consumers are now turning to the Internet first."

The path to content marketing success may take time, but it is well worth the wait. Effective plans yield long-term results that help drive traffic to your Web properties, build up search engine optimization (SEO) and keep your practice top-of-mind with potential and existing patients. The best way to approach content marketing is to join forces with your marketer and practice team to develop a strategy that melds your medical expertise with their marketing know-how. A patient's journey to finding a doctor has changed over the past decade, and the rapid evolution of social and digital technologies have made information abundant. Consumers are now turning to the Internet first. It is important to position yourself amongst your competition. Look at it this way: Patients have access to dozens and dozens of doctors in their local area, so it is vital that you build a relationship of trust through engaging and valuable content. When the time comes to make a decision, practices that have taken the

time to develop and execute meaningful relationships will triumph over those who choose to solely focus on paid ad-centric marketing campaigns.

In order to build a successful and sustainable presence on the Internet, it is important to approach your relationship with patients the same way big brands engage with consumers through content. You should not just dive into content production with no rhyme or reason. Those who are successful in this medium put together purpose-driven plans which define clear goals, integrate with existing marketing efforts and are set up to drive measurable results.

What is Content Marketing?

Content is at the center of digital marketing. There is no social media without content. There is no paid media without content. And there is certainly no earned media without content. If we go back to the core of the Internet, there is no search, no websites or Web pages to be displayed without content. We search, we read and we make decisions based on the content we find on the Internet, so it comes as no surprise that content is once again taking its rightful place as a central theme of strategy.

"By addressing the needs of your patients, you're establishing a relationship that will prove to be invaluable when the time comes for the patient to decide on a medical provider."

Content marketing has proven to be a successful form of inbound marketing because it focuses on what consumers need and want to learn, versus focusing on promoting a business. It is a way for brands to build trust, awareness and loyalty in an organic format. By addressing the needs of your patients, you're establishing a relationship that will prove to be invaluable when the time comes for the patient to decide on a medical provider.

Some of the most common and effective forms of content creation include:

- Blog posts
- Videos
- Infographics
- Educational guides
- Case studies
- Doctor interviews

"Before you even begin planning, you need to understand why you are creating content in the first place. What are your goals?"

Your Purpose and Plan Go Hand in Hand

Building a content program requires careful planning and patience. The success of your efforts is dependent on setting up a program with clear goals and purpose, quality content assets and measureable tracking. Before you even begin planning, you need to understand why you are creating content in the first place. What are your goals? Do you want to attract more patients? Maybe you need to do a better job of converting leads. Or, are you looking to generate repeat business? Asking yourself "why?" before embarking on your journey will empower you to create content that targets your core audience and drives the results your practice needs.

"Remember, the whole point of content marketing is to create content that your patients need and want."

Once you have identified the purpose of your content, it is time to plan what you will be writing about. Remember, the whole point of content marketing is to create content that your patients need and want. So, before you start outlining your production calendar, you need to take a look at your core audience and identify their pain points and needs as they relate to your goals. Truly understanding their needs will result in creating informative and helpful pieces that will yield the engagement and conversion you are looking for.

Based on their needs, start to outline topics that will provide education and value that simultaneously drive positive patient engagement with your practice. For example, if your goal is to attract patients, you might consider creating blog posts that tie in awareness months to venous care. Writing a post on DVT awareness month that educates consumers on the importance of DVT prevention and treatment addresses the educational need and demonstrates how your practice can help.

Putting Your Plan into Action

Planning ahead will help you maximize your effort and marketing budget. Depending on the size of your team and budget, the amount and frequency in which you produce content will vary. To get started, we recommend breaking your content out into quarterly themes. By doing this, you can create one big content piece—often referenced to as a "cornerstone" piece—and build off of it with supporting pieces of content. For example, if your theme was venous disease, you could schedule subsequent blog posts, interviews and graphics that touch on varicose veins during pregnancy, the new medications available for sclerotherapy, and DVT prevention and awareness. Planning your themes in advance will allow you to scout for the right resources and budget appropriately. The SEO value content can add to your website and the long-term Web presence it helps build, making investing in a plan worthwhile.

Now that you have outlined your content marketing calendar, it is time to add even more value to your efforts by building social storylines. Each content piece can have a storyline written for it on social media that is aimed at generating engagement and conversation.

- Twitter: You should plan at least 3–5 different tweets for each piece the week it is posted
- Facebook: Ask for feedback on Facebook, post the piece and ask your readers if they found it valuable, and what other topics they would like to read about
- One-to-One Sharing: Share the content with your colleagues and other social influencers, and ask them to share it on their social networks as well
- Paid amplification: Invest in paid forms of amplification like promoted tweets and sponsored posts

"While there are many benefits, content marketing is ultimately about building a relationship, and if you consistently share valuable knowledge, you will be met with loyalty from existing patients and trust from prospective patients."

Every time you publish and syndicate your content pieces, you are increasing your practice's presence in the digital landscape. Creating content that is valuable to your area of practice will position you as an expert, and unlike an ad, content organically demonstrates to patients why you are a leader in your field. While there are many benefits, content marketing is ultimately about building a relationship, and if you consistently share valuable knowledge, you will be met with loyalty from existing patients and trust from prospective patients.

Measure, Measure, Measure – It's the Only Way to Know if it is Working

A key component to executing a successful content marketing plan is to measure the performance of your efforts. Remember how you created a content plan based on your goals? Well, you are going to want to check in regularly to ensure your content is performing as intended. Taking the steps to monitor your results gives you the opportunity to refine your plan and create content pieces that deliver results.

Tracking usually involves the use of additional technology. If you are not working with a marketer who tracks your marketing performance, there are plenty of simple tools to help you measure results.

- Google Analytics: Use analytics to track and identify which content efforts are generating the most traffic and number of patient conversions
- HootSuite and Tweetdeck: Utilize social media dashboards to review which content pieces are being shared and retweeted the most
- Ow.ly and Bitly: Use URL tracking tools to view the click through rate and engagement levels of shared content links

Build the Right Content and They Will Come

Content marketing is a tool that works. It takes time, money and effort, but it is a proven way to build the type of trust and loyalty on the Internet that produces results. If you are looking to see immediate spikes in traffic, or a dramatic increase in inbound leads, content marketing is not for you. But, if you are dedicated and understand the rationale behind the importance of relationships in the digital space, you will find that your brand becomes stronger with each piece you publish online. **W**

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5th Palliative Wound Care Conference

May 14-16, 2015 Orlando, Florida

by Oscar M. Alvarez, PhD and Aletha Tippett, MD

The concept of palliation for chronic wounds is a relatively new concept within the past 10 years. Palliation recognizes and accepts non-healing endpoints as appropriate care and uses non-healing strategies to comfort patients and improve quality of life. There is no formal education on palliative wound care at this time, other than scattered individual lectures at various wound care symposiums. The program directors of this conference are both active in palliative wound care as practitioners, speakers and published authors. Frequently, the directors are asked by lecture attendees: "Where can I get training on palliative wound care?" There are many hospice caregivers who desire more information on specific treatments available and on approaches to management of chronic wounds in terminally ill patients, and the directors have many requests from this group too.

There is a tremendous need perceived by the program directors—both experts in the field—as it relates to knowledge and training for palliative wound care. Both program directors have published on wounds at the end of life and treatment of wounds with non-healing endpoints, and both have discussed this topic with other leaders in the field of wound care. A number of these leaders have eagerly agreed to be involved in this educational activity because of the recognized need. In 2010, we held the first formal conference dedicated to providing needed information and training on palliative wound care for physicians, nurses, other allied health professionals and students. The conference was highly successful, and was viewed as vital and important by attendees.

The first Palliative Wound Care Conference, held in 2010 in Cincinnati, had 70 attendees from nine states. Based on attendee input, we have tried to vary the location of the conference each year. The conference was held yearly at different locations, including Skamania in Stevenson, Washington; Indianapolis, Indiana; and again in Cincinnati, Ohio. Over this time, the attendance grew to over 150 attendees, with participants travelling from three countries and nearly 50 states. Attendees have come from Hawaii and Alaska, even as far as England and Turkey. This is the only conference dedicated to palliative wound care, with nationally acclaimed faculty leading two-and-a-half days of lectures and workshops. This conference is small and intimate, with lots of opportunity for networking and communication between attendees, faculty and vendors. Evaluations of the conference have been overwhelmingly positive, with most stating they were very satisfied with the conference, and the majority stating that most or all of the conference will be useful to them in their normal routine. Attendees who went to workshops stated they learned a lot and even wished they could spend more time. Our space for exhibitors was always filled, and exhibitors and attendees enjoyed the intimacy and closeness that allowed for interaction, discovery of new ideas and information sharing. Vendors gave high marks for the conference and accessibility to attendees.

Maggot workshop and classroom lecture.

The conference is sponsored by The Hope of Healing Foundation, a non-profit organization dedicated to limb salvage and innovative wound care, in partnership with the University of Cincinnati, who provides full accreditation for the conference. The 5th Conference is accredited for 17.5 hours CME and equivalent CEU. The conference co-directors for all five years are Oscar Alvarez, PhD, Director of Palliative and Curative Wound Care Center at Calvary Hospital in New York; and Aletha Tippett, MD, palliative wound consultant

and president of The Hope of Healing Foundation. Faculty selected for the conference include nationally and internationally acclaimed speakers and many published authors of journal articles and books.

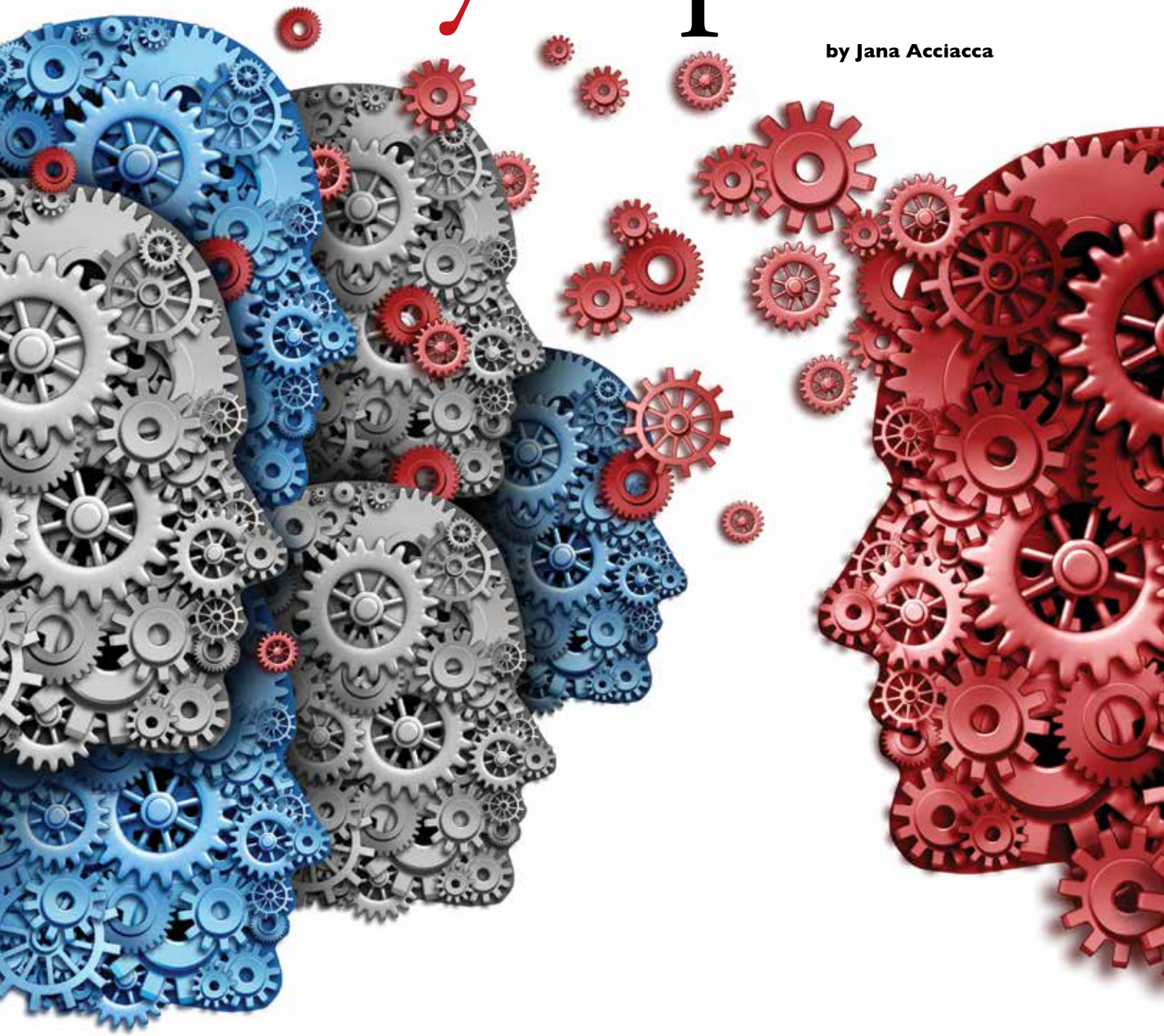
The 5th PWCC (Palliative Wound Care Conference) will be May 14-16, 2015, in Orlando, Florida. The host hotel is Doubletree by Hilton, Orlando Downtown. This downtown location is close to the airport and is within walking distance of many Orlando attractions, yet is only a short ride to visit Buena Vista and Disneyworld. Rooms have been reserved at the Doubletree for $119 a night.

Lecture topics for the 5th PWCC will include a general overview of palliative wound care in a keynote address by Oscar Alvarez, PhD. Special attention will be given to management of pain and odor, and treatment of fungating wounds—all challenging problems in palliative wound care. This lecture must not be missed and sets the tone for the whole conference. Greg Compton, MD, will speak on treating wound infection in palliation. When doing palliative wound care, the mandates for treating infection are different. The renowned Mary Ellen Posthauer, RD, will speak on nutrition and non-abandonment, something of great importance in this patient cohort. Bruce Chamberlain, MD, will present his inestimable lecture on understanding wound pain and causation, as well as managing pain and suffering. Pain management is at the essential core of palliative care, and Dr. Chamberlain's lecture will illustrate and elucidate this with great finesse. Ron Sherman, MD, will grace us with a lecture on using maggots for debridement, then follow with hands-on workshops on maggot therapy. This has always been one of the most enjoyable activities at the conference. How can you not love the maggots? Alternative and complementary care, a very popular topic, especially with increased legalization of marijuana, will be presented by Dr. Cathy Rosenbaum, PharmD. A special treat is in store for us with a lecture by Monica Hunter, MD, a cardiovascular surgeon. She will discuss palliation of patients with critical limb ischemia and gangrene. She will amaze us with some of her stories of salvation. Support surfaces for the chair and bedbound patient will be presented by James Spahn, MD, who is an inventor and key advocate for proper pressure support. The real key to proper pressure support is to provide flotation, and Dr. Spahn does an excellent job of explaining this. Diane Langemo, RN, PhD, will speak knowledgeably about pressure ulcers and deep tissue injury. This is a topic of great interest to her, and she has worked for years with the NPUAP. We

will have a special visit from Dominic Rizzo, DPM, who will be speaking about chronic osteomyelitis and surgical intervention. He is a gifted surgeon with many ideas and tips on how to handle these difficult cases. Diane Krasner, RN, PhD, is a celebrated clinician in wound care who will speak about the palliative nurse and wound dressings, and will conduct workshops on this also. Criminalization of wound failure is a new and current topic, which will be presented by Joy Schank, RN. As a nurse with experience in the legal system, she brings an eye-opening view on this topic. Aletha Tippett, MD, will close the lecture series with a look at wounds at the end of life and how to treat them—another lecture on palliative wound care with lots of case studies. After two days of lectures, there will be workshops on the third day on maggot therapy (Dr. Ron Sherman), wound dressings (Diane Krasner, RN, PhD), wound wrapping (Oscar Alvarez, PhD), total contact casting (courtesy of Derma Sciences), ABI (Dr. Greg Compton) and support surfaces (Dr. James Spahn). These are hands-on workshops that are each an hour in length, with three offerings of each on Saturday morning. The conference will start on Thursday, with lectures all day. A reception will be held Thursday evening to allow attendees to spend time with vendors. In keeping with the small conference design, the number of vendors is small enough to allow lots of communication and interaction, with better understanding being the result. Friday will be another day of lectures, and then Saturday morning will be devoted to workshops. Attendees overall in the past have been very positive about their experiences at the conference, and even nurses who had years of experience in the field said it was good because it confirmed a lot of what they did and gave them some new ideas. **W**

Leaders *We Can* Rely Upon

by Jana Acciacca



As a new publication in the area of chronic wound care, *Wound Care Therapies* is diligently working to provide resources that will aid in the practice of healing wounds. Our medical advisory board is an expert team of specialists representing the areas of vascular medicine, podiatry, interventional cardiology, palliative care and hyperbaric therapies, just to name a few. All of these leaders have their fingers on the pulse of today's most challenging cases in chronic wound care, and they are helping us to target editorial content that enriches the practice of reaching the ultimate end-point in wound care: healing.

We at *Wound Care Therapies* are proud to introduce Arthur Stone, MD, and Gregory Bohn, MD, as two of the newest members of our medical advisory board. In this article, we highlight their backgrounds and accomplishments, as well as their visions for the future of wound care.

Arthur Stone, MD

WCT: What is your current position? Are there any organizations you are involved in, projects or missions you are working on, or research you are involved in? Tell us about them…

I am currently the president of Mednexus, Inc., a consulting company connecting business and industry with health care. I also retain a small clinical practice providing care to long-term care and assisted living facilities. I'm presently serving a three-year term as an advisory board member of the National Pressure Ulcer Advisory Panel (NPUAP), and have been newly re-elected for another three-year term. I'm also a board member of the Bates-Jensen Wound Reach Foundation, and a member of S3I, a committee under NPUAP that deals with research and clinical awareness for support surfaces and wheelchair seating. Over this past year, I've participated in collecting the information necessary to begin a study related to diabetic foot ulcers. Several other studies I will be involved in include a novel new bed linen designed to help prevent pressure ulcers and providing insight about a new heel protector.

WCT: What led to your practice of wound care?

This has been a major passion of mine for many years, but the main reason is that I enjoy helping patients and continually being a patient advocate.

WCT: Please provide some background on your current practice.

My current practice has been scaled down to a small number of long-term care and assisted living facilities. Monthly rounds are carried out for a multitude of patient problems and issues.

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

The practice of wound care remains fragmented and has not yet come together as a true discipline.

"I always approach new and present wound care therapies with caution. Every patient is different and requires proper matching with the appropriate therapies."

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

I always approach new and present wound care therapies with caution. Every patient is different and requires proper matching with the appropriate therapies. Being a patient advocate, I look to different wound care therapies based on what is best for the patient and try to be vocal in the wound care community.

WCT: What recent advancements or studies, that you know of, or are participating in, have excited you with respect to advancing the treatment of wounds?

That's a tough question. When spending time in the exhibit hall and reading journals, there is so much duplication of products and studies. With that said, I believe what will help advance the treatment of wounds is the insistence of evidence-based research and treatment plans.

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 would like to help provide or lead *WCT* in providing the best, most up-to-date, evidence-based information possible.

WCT: Is there anything you would like to add?

I wish this endeavor all the success and hope that as it begins to mature, it becomes one of the leading voices for wound care.

Gregory Bohn, MD

WCT: What is your current position? Are there any organizations you are involved in, projects or missions you are working on, or research you are involved in? Tell us about them…

I am the presiding president of the American Board of Wound Healing. The board is working to provide providers in hyperbaric medicine and wound care a pathway to certi-

Continued on page 24

Continued from page 23

fication. The process is now closely looked at by regulatory agencies and their intermediaries. Credentialing has become an issue in some local coverage determination (LCD) policies covering hyperbaric services.

WCT: What led to your practice of wound care?

I wasn't involved in wound care until I came to lead the center at the hospital I was working at. It was through my friendship with the late Robert Warriner, MD, ABPM/UHM, and Jim Henry, then the CEO of Diversified Clinical Services, that I became passionate about wound care and the application of hyperbaric treatment in healing wounds. Serving as a zone medical director and being involved with national wound meetings and organizations has given me a perspective of the field.

WCT: Please provide some background on your current practice.

Currently, I practice wound care and general surgery. I have a very busy practice in wound care—seeing over 50 patients weekly with chronic wounds—and remain busy with surgery. I continue to be involved in research, new product development and wound care consulting.

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

The biggest challenges in wound care currently are standardization, education and credentialing. The rapid expansion of the field in recent years has brought many practitioners and ancillary staff to the centers, but there remains a void in training and education. This is highlighted in recent database queries where standard of care issues were examined. Fife, et al., recently published data on why it is so hard to do the right thing in wound care. In that paper, it was found that in the treatment of diabetic foot ulcers, contact casting was only used 6% of the time, even though randomized controlled trials indicate that contact casting is the "gold standard." Similarly, adequate compression was only used 17% of the time in treating venous leg ulcers. Compression is the mainstay of standard of care treatment for venous leg ulcers. There was a lack of understanding by practitioners as to clinical practice guidelines and wound care therapy.[1]

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

Surgery fits well in wound care. In my training, there was no wound care education, apart from wet to dry dressings for a failed incision. That's why wound care specific education is so important to those working in wound centers and with patients with chronic wounds. I have become passionate about education for wound care practitioners and providers.

WCT: What recent advancements or studies, that you know of, or are participating in, have excited you with respect to advancing the treatment of wounds?

The study of the wound microenvironment has advanced our understanding of the chronic wound condition, and specifically the role of biofilm and its effect in causing excessive inflammation and, therein, elevated protease activity in a wound. This excessive protease activity breaks down the dynamic healing process and wounds become stuck in an inflammatory cycle. The wound becomes chronic and cellular activity repair function and signaling is altered so that the wound doesn't progress. The recent discovery of broad spectrum matrix metalloproteinase (MMP) inhibition by new collagen dressings will change the course of the chronic wound and allow the practitioner to heal more wounds in a shorter period of time.

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?

Current issues in wound care are not often communicated to a wide audience. The magazine, through its circulation, can reach wound care providers with current and important issues affecting their practice.

"The work done by the wound care provider is essential, as other fields don't focus on effective treatment of these conditions or are unaware of their significance."

WCT: Is there anything you would like to add?

Wound care is a great specialty area in medicine. One fact I was unaware of is the mortality attached to amputation. The mortality rate in a patient who suffers amputation could be as high as 50% in five years. This rivals colon cancer and is worse than breast or prostate cancer. The work done by the wound care provider is essential, as other fields don't focus on effective treatment of these conditions or are unaware of their significance. **W**

1Fife CE, et al; "Why is it so hard to do the right thing in wound care" *Wound Rep Reg*: 18 p 154-158, 2010.

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*J. Lindfors. A Comparison of an Antimicrobial Wound Cleanser to Normal Saline in Reduction of Bioburden and its Effect on Wound Healing. Ostomy / Wound Management 2004; 50 (8): 28-41

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Wally Rogozinski, CEO and inventor of company's core products. Wally was formerly Vice-President of Product Development of the Medical Division of C. R. Bard, Inc., a multi-national medical device company; President of Catalina Biomedical Corporation, a drug and device manufacturer and director of Scientific Affairs for International Medical Resources, Inc., a medical device developer and manufacturer. He holds several drug and medical device patents.

Ila Doshi, Vice-President of Quality and Regulatory Affairs. Formerly she was Director of Quality and Regulatory Affairs for the Medical Division of C. R. Bard, Inc. Ila holds a Masters Degree in Microbiology.

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Referral Patterns *of* Primary Care Physicians *for* Acute *and* Chronic Wounds *in the* US

Would Educational Tools Be Helpful?

by Cornelius M. Donohue, DPM; Arthur Stone, DPM and Kwaku Amexo, MD, MBA

Primary Care Physicians (PCPs) make up approximately one-third of the 624,434 physicians devoting their time to direct patient care. This group of physicians consists of family physicians, general practitioners, general internists, general pediatricians, and geriatricians. In 2008, office-based physicians recorded nearly 956 million patient visits, of which 51.3% were by primary care physicians. It continues to be a phenomenon worth studying to explain the finding of epidemiologists and health economists who continue to validate the fact that between 5-8% of patients with chronic wounds ever get seen or referred to a wound expert, either in a solo wound practice or in a wound center.[1]

Historically, PCPs were responsible for a broad range of medical and surgical treatments that, over time and depending on the location (i.e., urban, suburban or rural), differentially changed, depending on the availability of medical and surgical specialists in a given watershed of medical care, the specialty training of the PCP, as well as the inclination and motivation of the PCP to refer their patients to those specialists.

In the developing world, many PCPs perform surgical procedures, including but not limited to incision and drainage (I&D), skin biopsy, wound debridement, suturing of lacerations, cervical biopsy, tubal ligation, circumcision, Caesarian sections, fracture management, laparotomy for appendectomy and bowel perforation.

"…PCPs in some parts of the US, particularly in rural areas, are performing skin biopsy, joint injections, surgery for ingrown toenails and removal of foreign bodies, among other procedures."

Today, even in the developed world, PCPs in some parts of the US, particularly in rural areas, are performing skin biopsy, joint injections, surgery for ingrown toenails and removal of foreign bodies, among other procedures. In fact, these types of procedures are those requested by locum tenens companies in the US when recruiting PCPs to work in rural areas.[2]

An article by Steven Shu describes the advantages and disadvantages of a wide range of types of wound-related procedures capable of being performed by PCPs with the proper training during residency or advanced training, state law allowances, and hospital credentialing if working in a wound center, as well as the advantages and disadvantages seen in Figures 1A-1E. Shu also stresses the importance of residency training in procedures, CMEs on procedures, accumulation and documentation of appropriate cases, procedure preceptorships, proper instrumentation, skills sets training in local and regional nerve blocks and conscious sedation, as well as training in the management of procedural complications, including referring to an ER or wound specialist.[3]

Concept of Family Medicine

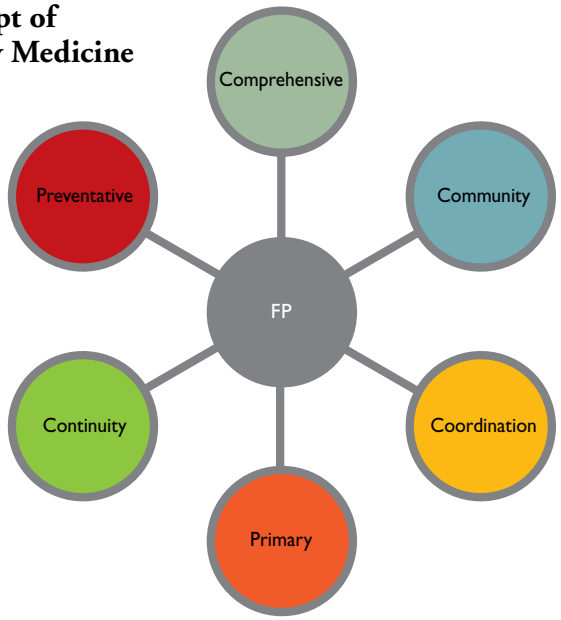

Figure 1A

Great Value of Office Procedures[4]

- Physician and staff already known to the patient
- Time savings for the patient and hospital
- Financial savings
- Continuity of care and increased patient satisfaction
- Rapid biopsy and histology results
- Greater job satisfaction for the physician
- Greater efficiency in the office practice

Figure 1B

Office Procedures in Family Medicine

- Add great value to patients and the health care system
- Family physicians can easily learn the specific techniques of a procedure
- Family physicians provide the same high quality services as their other services

Figure 1C

Disadvantages of Office Procedures[4]

- Lack of suitable training to perform procedures
- Lack of suitable equipment and premises
- The risk of missing serious pathology
- Allocating sufficient time in a busy practice
- Medicolegal concerns over complications
- Financial disincentives

Figure 1D

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Office Procedures: Surgery

- I&D foreign body removal
- Laceration repair
- Cryotherapy for skin lesions
- Skin tag removal
- Biopsy and benign excisions
- Ingrown toenail removal
- Skin cancer removal/flap closure
- Surgery in special locations (lips, ears, noses, eyelids)
- Wound debridement
- Sclerotherapy/phlebectomy/endovenous laser ablation for varicose veins

Figure 1E

"Diabetes is one of the commonly seen causes of wounds, both in the primary care office and in the office of the wound expert, including out-patient wound centers."

Diabetes is one of the commonly seen causes of wounds, both in the primary care office and in the office of the wound expert, including out-patient wound centers. The other commonly seen wounds every day by PCPs and wound specialists are from venous disease, arterial disease, pressure, trauma and from complications of surgery.

There are many other causes of wounds, some not common, but nonetheless potentially limb and life threatening (Figure 2).

Wounds Seen in the PCP Office, Wound Center, Home, ER, SNF and LTC Facilities

- Venous ulcers (venous insufficiency/reflux)
- Lymphatic obstruction/Lymphedema (wounds from veno-lymphatic disease):
  - CHF
  - Hepatic failure
  - Renal failure
  - Other overload states
  - Primary lymphatic insufficiency
  - Lymphangiosarcoma
- Macrovascular arterial insufficiency:
  - Dry necrosis (Gangrene)
- Mixed arterial-venous ulcers (forefoot, heel, ankle, ischium, gluteum, sacral)
- Pressure ulcers (see pressure ulcer classification)
- Diabetic ulcers (see Wagner classification)
  - Alcoholic neuropathy
- Vasculitis/vasculopathy/microvascular arterial insufficiency:
  - Diabetic microangiopathy
  - Hypertensive microangiopathy
  - Thromboangitis obiterans (TAO)
  - Raynard's Disorder
- Infectious conditions:
  - Bacterial
  - Fungal
  - Mycobaterial
  - Treponemal/spirochetic
  - Abscess (superficial and deep)
  - Cellulitis
  - Gas gangrene
- Hemotological disorders:
  - Sickle cell ulcers
  - Polycythemia
  - Dysproteinemia
- Pyroderma gangrenosum
- Mecrobiosis lipoidica diabeticorum
- Calciphylaxis
- Bullous pemphigoid/Pemphigus
- Malignancy:
  - Squamous cell carcinoma
  - Malignant malinoma
  - Basal cell carcinoma
  - Kaposi's sarcoma
  - Lymphoma (T-cell)
  - Mycosis fungoides
- Collegen vascular diseases (with ulcers)
  - Reumatoid arthritis (RA)
  - Systemic lupus erythematosus (SLE)
  - Polyarteritis nodosum
  - Wegener's granulomatosis
- Traumatic:
  - Injury
  - Bites
  - Stings
- Post-operative

Figure 2

Continued on page 32

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Acute and Chronic Wounds

Acute wounds, seen by the PCP, such as abrasions, traumatic lacerations, crush injuries, burns, puncture wounds, foreign bodies, arachnid and insect, as well as mammalian bites, should be evaluated promptly and decisions made as to the appropriate venue of care and caregiver, e.g., the PCP in his office or the ER. The etiology of the acute wound is oftentimes clearly evident after a history and physical examination of the acutely wounded patient.

"Nature has provided a genetic, biochemical and cellular partnership that we call the normal wound healing process, which, if allowed to proceed uninhibited by many possible 'distracting' factors, will continue along these pathways to normal healing."

Nature has provided a genetic, biochemical and cellular partnership that we call the normal wound healing process, which, if allowed to proceed uninhibited by many possible "distracting" factors, will continue along these pathways to normal healing. The normal healing process can be broken down into three basic phases: inflammatory, proliferative, and remodeling (Figure 3). The inflammatory phase consists of those events which engage both the cellular and humoral immune system to prevent infection and recruit cytokines and growth factors from those early cellular infiltrates during this phase, to prepare the wound for continued healing in the next two phases.

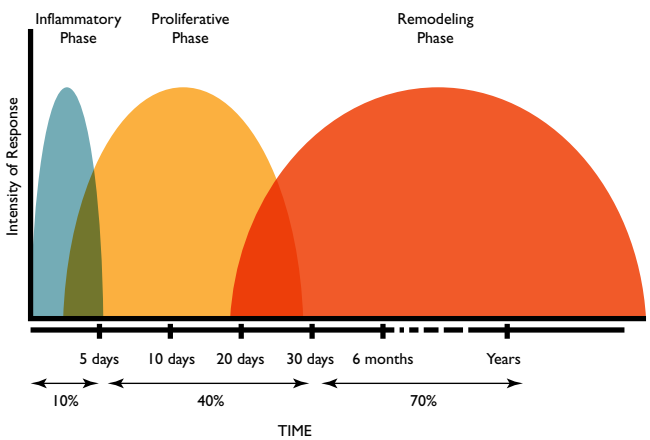

Figure 3

The proliferative phase includes angiogenesis and proliferation of fibroblasts and myofibroblasts and the synthesis and deposition of collagen into the extracellular matrix (ECM), as well as the activation of keratinocytes (juvenile epithelial cells) to be mobilized to prepare for the final process of producing mature, stratified epithelium over the granulation tissue produced as a result of a normal proliferative phase.

The remodeling phase includes continued organization of the newly synthesized collagen, apoptosis of fibroblasts to allow for continued organization and strengthening of collagen, and the migration of keratinocytes and their conversion to mature, stratified epithelial cells.

In contrast to acute wounds, chronic, or "non-healing" wounds, by definition "fail to heal within an acceptable period of time, using evidence-based therapies for a particular wound etiology."[5] So what are those "distracting factors," described in the discussion of the normal wound healing process, that can divert a wound from normal healing to a chronic wound condition?

In fact, the causes are many, including infectious processes, foreign bodies, trauma, pressure, malignancy, vasculitis, metabolic imbalances such as diabetes, other systemic diseases such protein-energy malnutrition liver, renal, vascular dysfunction (arterial, venous and lymphatic), or simply, incorrect initial wound diagnosis and concomitant management of the impact of co-morbidities that delay wound healing. In the context of the three phases of normal wound healing, chronic wounds become stalled somewhere in the inflammatory and proliferative phases, caused by one or more of the distracting factors which need to be identified and corrected, before the wound can return to a normal wound healing path (Figure 3).

Also in contrast to acute wounds, chronic wounds are often more elusive in terms of their etiology (along with contributing co-morbidities), as well as their complexity. Sometimes, a chronic wound, such as a diabetic foot ulcer (DFU), can become associated with an acute complication such as an abscess or deep space infection in the foot, which is a surgical emergency, necessitating thorough evaluation of all chronic wounds for these sometimes occult acute infections or ischemic events, such as Critical Limb Ischemia (CLI).

Chronic wounds are responsible for numerous associated complications and financial effects, including pain and suffering (including scarring), sepsis, amputation, hospitalization, time out of work, restriction of family responsibilities, costs of transportation to wound specialists and emergency rooms, interference with independent, pain-free weight-bearing, and patient and family litigation and government fines in relation to zero-tolerance policies for pressure wound occurrence in SNFs, long-term care facilities and hospitals.

Primary Care Physicians and Chronic Wounds

Ideally, we should encourage universal advanced wound prevention, diagnostic and treatment education for PCPs and other non-wound expert physicians that promotes evidence-based individual decision-making in diagnosing and managing a particular wound depending on their level of clinical wound healing knowledge, skill set training, and overall comfort level with a particular patient with a wound, especially one with multiple healing impacting co-morbidities. In fact, many PCPs are members of wound center staffs, including doing wound debridement based on their hospital credentialing, skill sets and professional comfort level.

As in all aspects of medicine, the presumption would be that the PCP would naturally consider referring a chronic wound patient to an individual specialist or a local wound center when an advanced level of care, e.g., an osseous and/or deep tissue debridement for osteomyelitis, or skin graft was needed. In addition, we would hope that because of the anticipated fundamental integrity of the decision-making process, the healing outcomes would be equivalent regardless of the physician caregiver because providing evidence-based diagnostic and therapeutic principles would be a universal priority applied by all physicians treating the wounded patient.

"Despite the growing availability of wound experts and wound centers in the US, it is quite clear that primary care referrals of their practice wound patients in the US are not as widespread a phenomenon as one would expect…"

Despite the growing availability of wound experts and wound centers in the US, it is quite clear that primary care referrals of their practice wound patients in the US are not as widespread a phenomenon as one would expect, with many patients identified with a chronic wound not initially being referred, but instead, being managed in the primary physician's office in conjunction with his office staff. *In fact, epidemiologists and health economists continue to validate the fact that only 5-8% of patients with chronic wounds ever get seen by a wound expert, either in a solo wound practice or in a wound center.*

What would be very valuable, particularly as it relates to the continuing development of wound healing education for PCPs and improved communication between the PCP and the wound expert, is improved understanding of the diversity among PCPs regarding the process with which they identify wounds in their practices, including the primary diagnosis and contributing co-morbidities, staging (depth), vascular status of the patient, management of lymphedema and infection, the need for debridement and other surgical procedures including biopsy, off-loading of pedal wounds, wound splintage, and choice of wound bed products.

It seems that a systematic effort should be initiated, on a national scale, to determine two things. The first is what the wound healing education interest and needs are of the PCP community for their office patients, home bound wound patients, as well as their wound patients in SNFs and long-term care facilities. The second is determine how PCPs feel about treating wound patient in their own offices and also how they feel about wound specialists, and their motivations for referring their patients to them. Some of these needs may include educational tools, information and contacts specifically about the availability and services of wound experts and their wound nurse practitioners in their local or regional wound center, as wound center "extenders" in the wound care of their SNF and long-term care patients, as well as the role of these same wound experts and wound nurse NPs as educators of home wound care nurses caring for the patients in the watershed of the PCPs.

"…we are proposing a first-generation survey of PCPs, designed from the pool of questions below, that may generate valuable information about how PCPs feel…"

Before evaluation and construction of specific curriculum, both academic and clinical, can be undertaken for the PCP community, we are proposing a first-generation survey of PCPs, designed from the pool of questions below, that may generate valuable information about how PCPs feel about chronic wound patients in their practice, wound expert and wound center referrals, as well as how they feel about the need for a new generation of wound prevention, diagnostic and treatment education for PCPs, with innovative methods of educational material delivery, for both themselves and their office and nursing home staffs who care for wound patients.

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Examples of some of these tools, technologies and devices to assist the PCP and wound specialists in managing their wound patients include, the Bates Jensen Wound Assessment Tool (BWAT), NE1 Photographic Wound Documentation Tool (Medline, Figure 4), Smart Beds, and Pressure Mapping.[6,7,8,9] Another one of these innovative technologies is wound telemedicine, discussed in a recent study where 93% of those PCPs polled were interested in incorporating wound telemedicine expert consultations into their practices.[10]

"In the process of developing example survey questions, we also welcome comments and suggestions from our readers regarding this subject, including potential survey questions."

In the process of developing example survey questions, we also welcome comments and suggestions from our readers regarding this subject, including potential survey questions. The participation of the reader is welcomed.

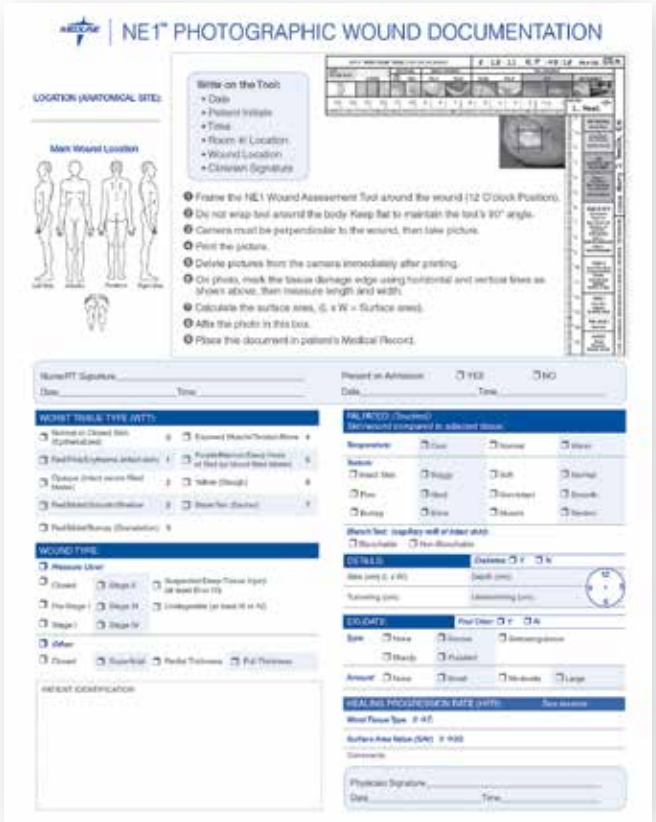

Figure 4.

Survey Question Pool on Wound Healing for Primary Care Physicians

1. Do you believe there are there significant numbers of chronic wound patients in the community without a relationship with a PCP?
2. Are you generally comfortable with the diagnostic and healing outcomes in your office practice?
3. What is the stimulus for you to contact a wound expert or a wound center?
   a. Wound depth b. Signs of infection
   c. Pain d. Wound size
   e Interference with weight-bearing
   f. Other
4. What causes hesitation in you to contact a wound expert?
   a. Fear of losing your patient to another physician
   b. Fear of criticism of initial or sustained inappropriate wound diagnosisand care
   c. Low comfort level in discussing the nature or suspected diagnosis with a wound expert
   d. Lack of confidence in the local wound expert(s) and/or wound center
   e. Lack of repeat referral because of a history of poor communication, either by phone or letter, from the wound expert
5. Are you hesitant to refer to specialists in general, who also provide primary care services such as H&Ps, medication refills, immunizations, and other PCP medical services, due to fear of losing your patients?
6. Would you and your office staff, e.g., nurses, be interested in information for your office, including an outline of best practice assessment, diagnostic and therapeutic information on common, e.g., venous, pressure, arterial, diabetic and traumatic, and less common wounds, e.g., vasculitic and malignant, seen in the primary care office, in order to assist you in determining which wounds you can effectively treat in your office and which wounds might best be considered for referral to a wound expert?
7. Would you and your office staffs, e.g., nurses, NPs or PAs, be interested in educational dinner meetings or periodic conferences, sponsored by the wound center and/or the wound center partner hospital?
8. Would you be interested in you and/or your office staff visiting an out-patient wound center to see how evidence-based clinical practice guidelines are applied in this setting, and also in participating in workshops with your staff which would include history and physical examination, development of a wound differential diagnosis, choice of diagnostic studies, initiation of treatment plans, and skill sets for monitoring for wound chronicity and proper intervention?
9. Would you be more inclined to send a patient to a wound specialist in his private office in the community or a hospital-based wound center?
10. What are your expectations from a wound specialist?
    a. Phone call to discuss the case, including diagnosis, best practice treatment plan, including surgical needs and prognosis

b. Dictated faxed, mailed or e-mailed initial report and regular updates

11. How important is it to you in referring a patient to a wound expert that:
    a. Your patient and their families are treated with honesty and respect?
    b. You develop a trust level with the quality of care and communication level of the wound expert?
    c. The expert coordinates all aspects of not only wound healing, but lymphedema management and weight-bearing rehabilitation as well?
12. Are you interested in having a wound expert and their wound NPs do SNF and long-term consultations for your wound patients in the facilities rather than have your patients transported to a wound center whenever possible?
13. Would you be interested in your office, SNF and long-term care nurses participating in a wound nursing council, along with home wound care and hospital wound nurses, where nurses can develop a collegial relationship with other nurses with wound healing interests, with regularly scheduled lectures, workshops, and information regarding local, regional and national wound nursing seminars?
14. Do you consider chronic wounds an excessively time-consuming part of your practice?
15. As a primary care physician, would you be interested in being a member of a local wound center staff, including a course provided on wound healing and hyperbaric oxygen therapy?

Questions # 16 and # 17 relate to wound telemedicine

16. Would you be interested in a wound telemedicine app in your office where, in a simple store and save manner with your smart phone or office computer, you could communicate with a wound expert regarding the following?
    a. Wound photos and/or videos
    b. Accurate wound measurements, including area and volume
    c. Wound-related historical and physical examination data
    d. Wound-related medications
    e. Wound-related co-morbidities and then receive back from the wound expert
    f. Information on wound diagnoses and information on best-practice (evidence-based) treatments, which would be part of an expert-generated "e" management plan, including recommendations for further required diagnostics, as well as staging (depth), vascular evaluation and treatment of the patient, management of infection, the indications for debridement and biopsy, off-loading pedal wounds, wound splintage, choice of wound bed products, Information on how to monitor wound healing progress (chronicity algorithm) and specific information on the rational of how to decide which wounds you can treat in your offices and which wounds should be seen by an expert
    g. A multimedia educational resource for wound prevention, diagnosis, and treatment for you and your office staff, including narrated PowerPoint presentations, instructional videos and journal article references
17. Related to question # 13, above, regarding your office wound patients, are you interested in a wound telemedicine smart phone app for your SNF and long-term care wound patients, as well as to assist a home wound care nurse, communicate with you and a wound expert (including an "e" management plan sent to the point of care and to you, simultaneously), when needed?

Summary

Considering the universal role of primary care physicians in having the initial encounter with most chronic wound patients in any community, the importance of PCP education about chronic wounds, including the importance of them trusting and communicating with the local and regional wound experts as a resource for the moderate and severe chronic wounds, particularly those with surgical needs, should not be underestimated. The increasing number of chronic wounds and amputations from diabetes alone, where diabetics have a five-year 70% mortality rate after a below-knee amputation, along with the many other causes of chronic wounds with risks of morbidity and mortality, demand that more seamless education and communication occur between the PCP and wound expert worlds.[11] The development of a survey is proposed here to begin to understand the interests of PCPs in wound healing education as well as their interests in using wound expert consultants for the benefit of their practice wound patients. **W**

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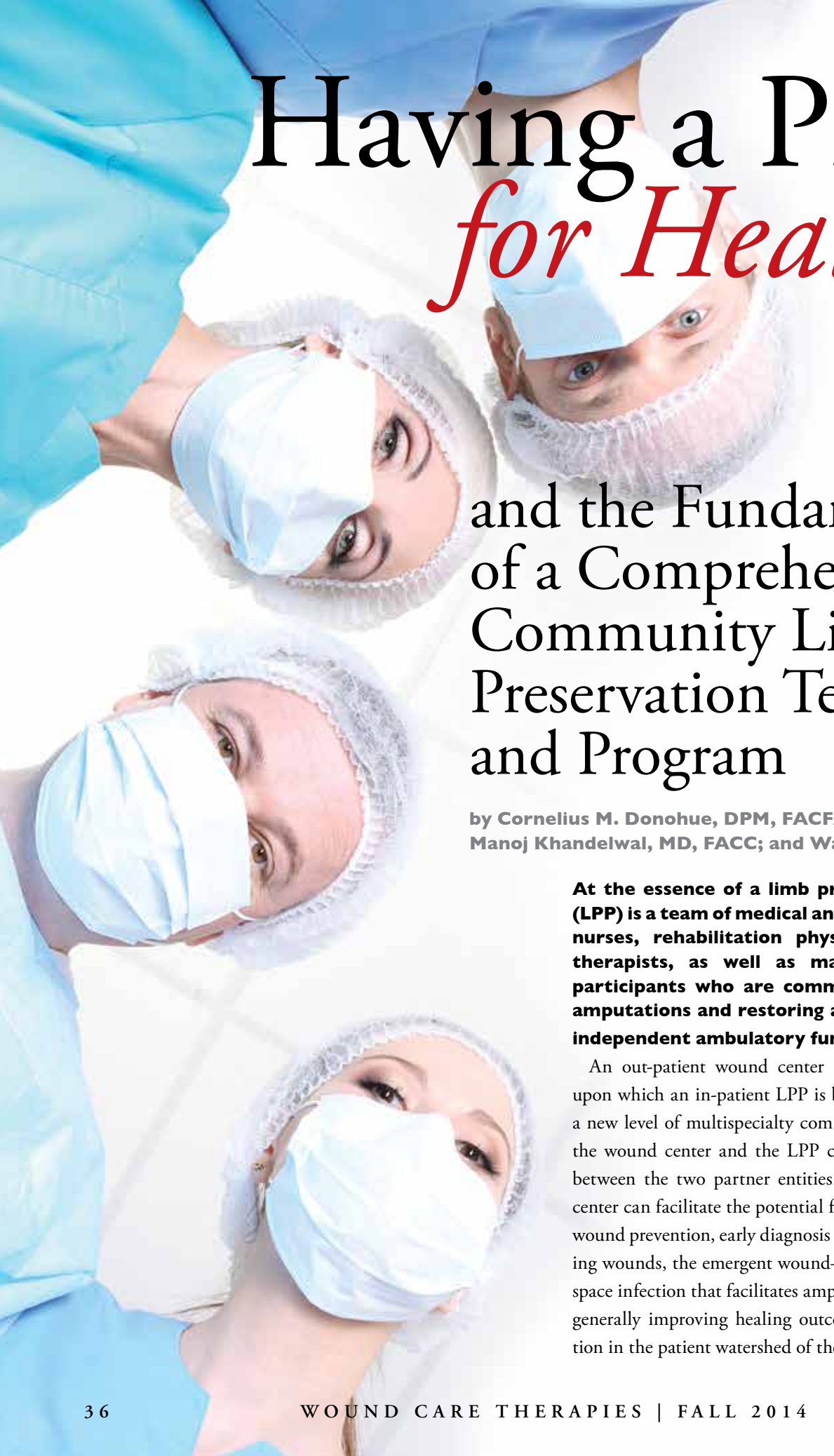


Having a Plan *for Healing*

and the Fundamentals of a Comprehensive Community Limb Preservation Team and Program

by Cornelius M. Donohue, DPM, FACFAS; Manoj Khandelwal, MD, FACC; and Warren Joseph, DPM

At the essence of a limb preservation program (LPP) is a team of medical and surgical specialists, nurses, rehabilitation physicians and physical therapists, as well as many other specialty participants who are committed to preventing amputations and restoring a patient to optimal, independent ambulatory function.

An out-patient wound center becomes the foundation upon which an in-patient LPP is built—the LPP requiring a new level of multispecialty commitment, and ultimately, the wound center and the LPP can create a new synergy between the two partner entities. The out-patient wound center can facilitate the potential for increasing community wound prevention, early diagnosis of chronic and deteriorating wounds, the emergent wound—such as a diabetic deep space infection that facilitates amputation prevention—and generally improving healing outcomes and limb preservation in the patient watershed of the two programs.

The term "limb preservation" is advocated to eliminate the negative connotation of the historically used term "amputation prevention," in order to refocus on the ultimate goal, which is to maintain optimal lower extremity tissue viability and to restore pain-free, independent ambulation to the at-risk patient.

The Rationale for Limb Preservation

Even today, the labor-intensive efforts to save an at-risk lower extremity from amputation are questioned with comments like:

- Why are you whittling away at the foot?
- Don't most of these infected and ischemic wounds usually go on to below-knew amputation (BKA) or above-knee amputation (AKA)?
- Wouldn't an amputation save the 'system' a lot of unnecessary and 'wasted' expense?
- Why not just do the BKA, rehabilitate the patient with a prosthesis and get the patient back home?

The evidence for continued development of strategies to preserve the lower extremity from amputation continues to be validated in the literature. In a study by Aufvivola et al., it was determined that diabetics have a 5-year mortality rate of 70% after one below-knee amputation.[1] In addition to the high-risk pool for mortality, the first BKA also puts the diabetic patient at high risk for a contralateral amputation.

Physical and Psychological Impact of Amputation

- Contralateral amputation
- Increased risk of mortality
- Negative self-image / depression
- Loss of ambulatory independence if BKA is not able to be rehabilitated
- Risk of decubiti and sepsis
- Loss of ability to work
- Cost to patient, family, insurance companies—both public and private

Figure 1

The Community Limb Preservation Program Model and Team

The model is a simple one, if you have the right critical mass of specialists. The difficulty arises in developing the "will." This means determining, in a given at-risk limb case, who is going to decide what is done diagnostically and therapeutically, medically and surgically, and in what order. It is that common and cooperative decision-making paradigm within which the success or failure of a limb preservation program occurs.

In a traditional limb-threatening case that is first seen in the emergency department (ED), the important element in optimizing the value of the team is that, depending on the nature and location of the wound or infection, a small leadership group within the team coordinates the communication and care provided by the other team members. For example, if a septic patient comes into the ED with an ischemic foot and deep plantar space infection, the initial leadership for that case may be the medical attending physician, the vascular specialist, the podiatric surgeon and the plastic surgeon. The coordination of who does what first, both diagnostically and therapeutically, is critical to optimal healing. This is also a process that develops and improves over time, as team members learn the details of each other's medical and surgical skill sets, as well as communication protocols among the group.[2]

In the case below, it may be decided, after consultant discussions, that an emergent incision and drainage (I&D) of the deep space infection by the podiatric surgeon is the priority. Culture and sensitivity (C&S), as well as culture-guided antibiotics to address the sepsis, may be followed by a vascular work-up and intervention, if needed, to re-perfuse the lower extremity. The plastic surgeon, with his knowledge of the angiosomes of the lower extremity, combined with his surgical skill sets, many times will assist the podiatric surgeon to optimize preservation of tissue during the debridement for future flap construction during the later reconstruction phase of the case.

The clinical setting described below refers to the in-patient LPP and team. However, if we can continuously reduce the incidence of new diabetic foot ulcers (DFUs) by comprehensive community podiatric diabetic foot care and diabetic education, along with primary care physician, skilled nursing facility (SNF), long-term care (LTC), long-term acute care (LTAC) and home wound care community nursing awareness of DFUs, the pool of potential at-risk patients for amputation should steadily decrease on a community population level.

This concept of comprehensive community limb preservation team (LPT) membership, awareness, education and communication is why the development of an appropriately broad-based clinical membership in the LPT—with participants composed of both hospital and community caregivers—is so critical to optimizing limb preservation in any community.

Community Limb Preservation Team

- Interventional cardiology
- Interventional radiology
- Vascular surgery
- HBO physician
- Podiatric surgery
- Orthopedic surgery
- General surgery
- Infectious disease
- Primary care physician (PCP)
- Physician's assistant (PA)
- Cardiology
- Internal medicine
- Nephrology
- Endocrinology
- Medical/surgical residents
- Medical students
- Hospital staff wound nurses:
  - Wound center
  - In-patient wound nurse/wound navigator
  - Floor nurse
- Community nurses:
  - SNF, LTC, LTAC
  - Home care
  - PCP nurse
  - Nurse practitioner (NP)
- Physical medicine
- Orthotists/prosthetist
- Physical therapy
- Nutritionist
- Psychiatry:
  - Compliance
  - Depression
- Diabetic educator

Figure 2

Types of Wounds Seen in a Limb Preservation Program

Below, Figure 3 outlines the types of acute wounds and infections typically seen by the limb preservation team (LPT). It is important to remind the reader that chronic wounds, from many causes besides diabetes—including wounds from arterial and venous disease, pressure, vasculitides and infectious diseases, among many others—can deteriorate rapidly depending on the complicating co-morbidities in a patient, including, but not limited to, lower extremity ischemia, compromised immunity and protein-energy malnutrition. By definition, a chronic wound is a wound that fails to heal within an acceptable period of time, using evidence-based therapies for a particular wound etiology.[3] This is why it is so important for the LPT to be composed of both hospital and community wound caregivers to optimize the community vigilance in recognizing chronic deteriorating wounds in order to promote early and effective medical and surgical intervention. This is the desired outcome that can only be achieved if there is a comprehensive community limb preservation program and team.

Types of Limb-Threatening Wounds and Infections Seen by the LPT

- Infected neuropathic and/or ischemic plantar ulcers
- Abscesses
- Deep plantar space infections
- Necrotizing infections
- Wet necrosis (gangrene) with or without gas
- Dry necrosis (gangrene)/critical limb ischemia (CLI)
- Osteomyelitis
- Traumatic wound with infections and/or necrosis Combinations of above

Figure 3

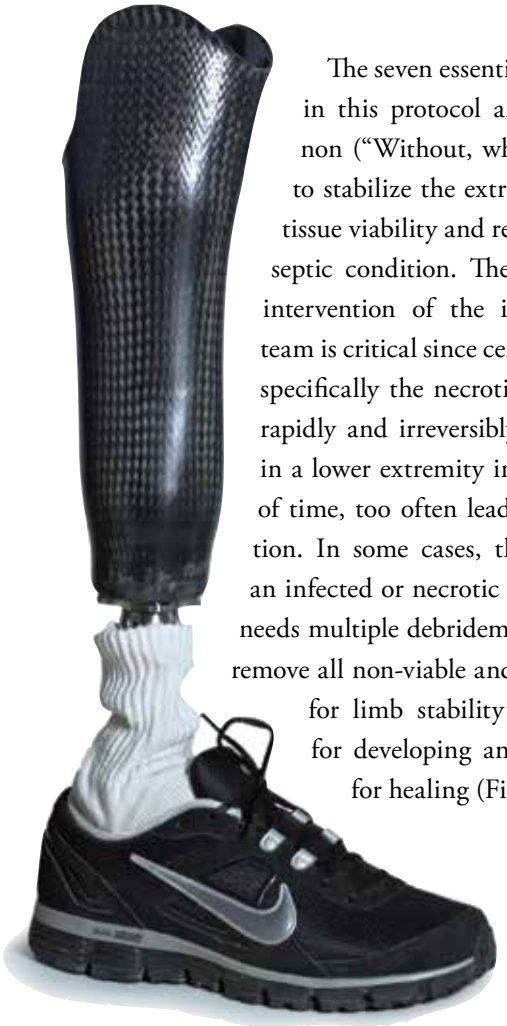
Mobilization of the Team in the Acute Limb Preservation Case

As a model for mobilizing the acute management team for a limb-threatening infection, with or without critical limb ischemia, Fitzgerald et al. defined the details of the process in a paper entitled, "The Diabetic Rapid Response Acute Foot Team: 7 Essential Skills for Targeted Limb Salvage," as seen below in Figure 4. Note that in these acute circumstances, the focus is vascular assessment and intervention, and if needed, neurologic evaluation, identification and staging/grading of the wound—including tissue layers involved—the fundamental importance of early and thorough debridement, incision and drainage of abscess, and the institution of culture-guided antibiotic therapy[4].

The Diabetic Rapid Response Acute Foot Team:
7 Essential Skills for Targeted Limb Salvage[4]

- The ability to perform hemodynamic and anatomic vascular assessment with revascularization, as necessary
- The ability to perform a neurologic work-up
- The ability to perform site-appropriate culture technique
- The ability to perform wound assessment and staging/grading of infection and ischemia
- The ability to perform site-specific bedside and intra-operative incision and debridement
- The ability to initiate and modify culture-specific and patient-appropriate antibiotic therapy
- The ability to perform appropriate postoperative monitoring to reduce risk of reulceration and infection

Figure 4



The seven essential skills defined in this protocol are the sine qua non ("Without, which, nothing"), to stabilize the extremity, optimize tissue viability and reverse a patient's septic condition. The timing of the intervention of the interdisciplinary team is critical since certain infections, specifically the necrotizing types, can rapidly and irreversibly destroy tissue in a lower extremity in a short period of time, too often leading to amputation. In some cases, the patient with an infected or necrotic lower extremity needs multiple debridements in order to remove all non-viable and infected tissue for limb stability in preparation for developing an extended plan for healing (Figure 5).

The Diabetic Rapid Response Acute Foot Team:
7 Essential Skills for Targeted Limb Salvage[4]

- It is therefore vital to provide early and effective diagnosis, and management of patients with lower-extremity complications of diabetes in an effort to stem the current epidemic of limb loss.
- Considering that the pathophysiology of lower extremity limb loss in patients with diabetes is multifactorial and that vasculopathy and neuropathy are critical contributors, it is appropriate to utilize an interdisciplinary team approach to specifically address the varying factors that combine to create lower extremity ulceration, infection and amputation.
- Such interdisciplinary models have been demonstrated to be highly effective in reducing the incidence of non-traumatic amputations in the diabetic population.
- The management of lower extremity manifestations of diabetes mellitus is a complex task, and it is necessary that the practitioners involved in diabetic limb salvage address both the systemic and local factors that interact to generate significant co-morbidity and mortality in this patient population.

Figure 5


Cellulitis left leg - showing excoriation and blistering


Healed completely - showing some hyperpigmentation.

Having a Plan for Healing

The management of the acute lower extremity focuses on medical management of systemic disease, wound etiology, tissue layer involvement assessment, infection management, tissue perfusion, flap preservation and neurological evaluation. Besides these acute care elements for the LPT, there are elements in a universal "Plan for Healing," described here, which also include essential principles for the reconstruction of the lower extremity or healing of the wound once stabilized by the LPT, with staged procedures when necessary (Figure 6). The elements of the plan for healing for the acute wound and/or infection can be seen in elements #1-7, #13, "Acute Care (LPP and Team)" under #14, and "Medical and Surgical Treatment Plan" in Figure 6. These "Plan for Healing" elements, as well as the others through #20, also apply to the reconstructive and healing stages needed to complete the healing process. The only differences among the application of the 20 principles in the Plan for Healing are the urgency and timing of the need for intervention, based on the condition of the patient and the opinion of the specialists on the team.

Having a future Plan for Healing is often not given adequate thought when it comes to considering all options for healing as the case progresses and the wounds stabilize after the acute medical and surgical intervention. The plan must include thoughtful and best practice choices of an evidence-based combination of procedures, whenever possible, to deliver the most optimal healing outcome for the patient. This includes skin grafts (xeno-, allo-, and auto-), flaps and secondary healing, which considers the weight-bearing functionality of the healed tissue. A complete Plan for Healing must also include appropriate follow-up for wound-healing prevention, monitoring for signs of new wounds and infections, and patient education.

Having a Plan for Healing

Wound Patient History

1. History of the wound patient, specifically, the contribution of medical, surgical and pharmacological history to optimizing host factors to manage wound healing co-morbidities

Wound Patient Physical Examination

2. Evaluation of arterial and venous disease
3. Evaluation of wound and peri-wound: necrotic tissue, infection and inflammatory tissue
4. Evaluation of dysfunction and deformity
5. Neurological evaluation
6. Evaluation of general pain
7. Evaluation of edema and lymphedema
8. Evaluation of needs of the wound bed microenvironment
9. Evaluation of the wound needs for optimizing tissue growth with consideration of use of advanced healing modalities
10. Evaluation of need and strategies for wound pressure relief by off-loading and wound immpbilization
11. Differential diagnosis(es), including co-morbidities
12. Healing outcome and surgical intervention wishes of patient and family/POA
13. Medical management, second opinions and appropriate in-patient consultations
14. Medical and surgical Treatment Plan
    a. Acute care (LPP and Team)
    b. Reconstructive surgery
15. SNF vs. home post-operative wound care
16. Comprehensive post-discharge instructions with wound treatment and follow-up appointment information

Prevention, Monitoring and Education

17. Regular monitoring of healing trajectories, with systematic CPG review to evaluate need for a new diagnostic investigation and intervention if wound does not meet healing thresholds, suggesting deterioration into chronicity
18. Follow-up appointments
19. Continuing patient education
20. Podiatric medicine and surgery and diabetic ulcer risk assessment and preventative foot care

Figure 6

We would like to encourage a dialogue to begin to develop a new level of clinical practice guideline (CPG) (e.g., a Limb Preservation Clinical Practice Guideline), built from the acute LPT intervention principles (Figures 4, 5) and used in combination with the Plan for Healing and our current Chronic Wound Clinical Practice Guidelines. These new guidelines can be used in the out-patient center for prevention, and diagnosis and treatment of community chronic wounds. The guidelines would include all of the aspects of reconstruction of wounds and patient rehabilitation (e.g., guidance in the integration of evidence-based wound products and treatments, such as hyperbaric oxygen therapy, appropriate choices of surgical procedures (e.g., osteotomies, bone grafts, internal and external fixation, skin flaps and grafts), as well as total contact casting (TCC), bracing and rehabilitation).

Of central importance are best practices of vascular diagnostics and treatment, and decisions about what procedures are appropriate in a given case—be it open or interventional, supra- or infra-popliteal angioplasties, with or without stents—and which should be integrated into this protocol.

Even with improved reperfusion outcomes, we won't prevent every amputation, but we hope that over time we can make an impact on decreasing the amputation rate in our region and improving the quality of life of those people whose lower extremities are preserved.

The concept of having a Plan for Healing with every wound patient seems obvious, and maybe even sophomoric. However, having a plan for healing involves many different levels, certainly including evidence-based clinical practice guidelines, which themselves act as a significant part of the raw material upon which a plan for healing and rehabilitation of the patient can be built. Actually, a plan for healing involves a number of categories of knowledge, surgical skills, products, devices and experience—the absence of any one of these categories immediately reducing the optimal healing outcome in any given case. The value of experience alone should never be underestimated, considering that sometimes, if a case gets complicated, a seasoned wound caregiver can draw on similar situations, complications and healing resistance to find another pathway for the healing of a patient, that someone less experienced simply may not have considered.

The elements of a Plan for Healing begin with a thorough history and physical examination of the wounded patient, followed by application of evidenced-based clinical practice guidelines (e.g. preventive, diagnostic and therapeutic),

delineation and systematic management of diagnoses and contributing co-morbidities, definitive surgical plan designs, and patient and family education. The foundation of the plan also takes into account important subjective factors, such as the experience of the wound caregiver, medical and surgical follow-up, the mental and physical status and prognosis of the wound patient, the patient's own healing goals, and the healing goals of the patient's family and/or the power of attorney (POA).

A Plan for Healing then is multifaceted with many sources of information being considered in not only deciding what a patient needs to heal, but also deciding the pathways to achieve that goal, and what specific combination of procedures, products, devices and sequential specialty care will provide the optimal healing outcome. A Plan for Healing also includes constant vigilance so that complications are identified early, with new plans for healing being developed based on the changed or changing condition of the wound or patient.

Prevention, Monitoring and Education

Over time, after a wound is healed, a number of responsibilities need to be maintained by the patient in order to reduce the risk of wound recurrence or creation of a new lower extremity wound or infection. Regular visits to the patient's primary care physician (PCP) are essential to this preventive formula, along with compliance with diet, medication, smoking cessation and alcohol restriction orders by the PCP.

In addition, appointments with medical and surgical consultants involved in the patient's acute and reconstructive surgical care must be kept, particularly the vascular specialist consultant. Regularly scheduled preventive diabetic foot care, along with shoe and orthotic therapy, when appropriate, are essential wound and infection prevention measures. Out-patient diabetic education programs should be offered to patients in need of this educational material. In addition, orthotics and prosthetics (e.g., after partial foot amputation), must be monitored by physical medicine and physical therapy. Finally, physical therapists trained in lymphedema management, must always be vigilant to the needs of compression therapy to prevent new lower extremity wounds, when indicated.

Summary

Ultimately, the expected outcome with a well-functioning limb preservation program and team is to optimize wound healing, limb preservation (amputation prevention) and weight-bearing function in the case of the wounded, infected and ischemic lower extremity. In considering the building of a LPP and team, it must be determined early on in the process if there is local leadership to nurture the collaboration, communication and, most importantly, the common will among the medical professionals involved in the patient's care, to consciously and effectively use their combined talents and communication's skills to improve the limb preservation and healing outcomes in those patients who seek their help with these potentially limb- and life-changing conditions.

The chronic wound is best served by being diagnosed and treated early, which helps return it to a healing path. That is why educated PCPs, nurses and physician's assistants in the community should be considered members of a new, more comprehensive definition of a limb preservation team (Figure 7), because they play an essential role in contributing to the early identification of chronic wounds as well as the early identification of the acutely infected and/or ischemic lower extremity, so that the LPT can engage the patient as soon as possible to maximize tissue and limb preservation, minimize the risk of amputation and develop a plan for reconstruction.

Finally, a coordinated communication protocol is essential for the Limb Preservation Team concept to promote optimal healing outcomes. In addition, the authors hope that a well-functioning Limb Preservation Program and Team, in any patient watershed, will create a regional culture of hope for those patients at-risk for amputation, and that they will seek the help of that team or similar teams that use the model in other hospitals and communities that have a common goal of reversing the ravaging effects of these complex and devastating diseases and their impact on human lives.

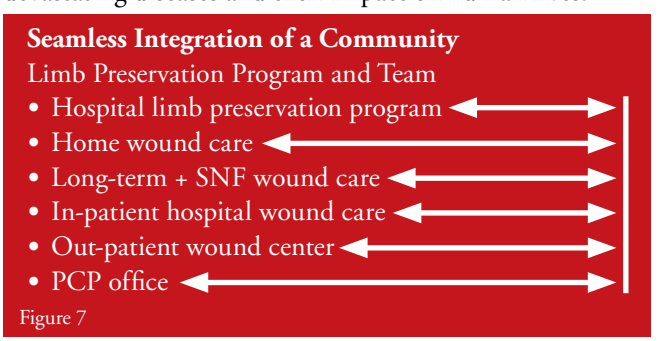


Figure 7

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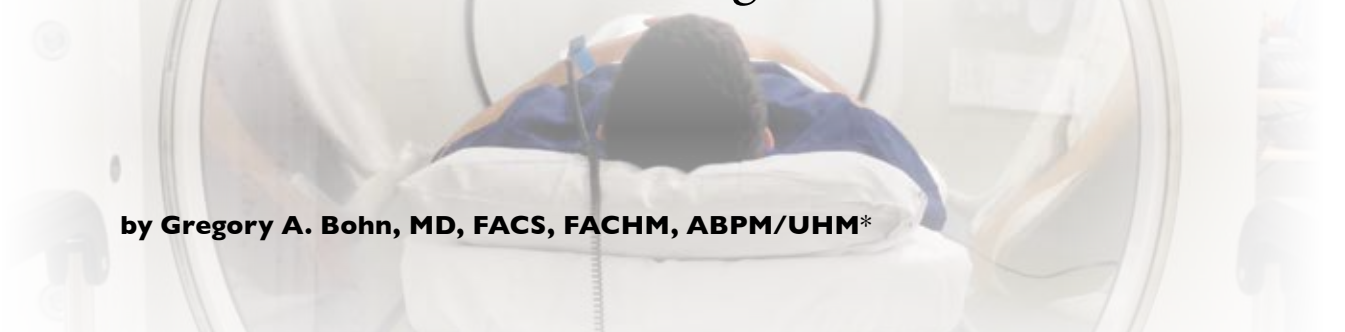
Advancing the Practice in Hyperbaric Medicine

A Current Look at Credentialing and Certification



by Gregory A. Bohn, MD, FACS, FACHM, ABPM/UHM*

In the past 10 years, the field of hyperbaric medicine has expanded rapidly. Once confined to large institutions with multi-place chambers, the expansion of wound care centers across the country and the recognition of the value of hyperbaric therapy in the healing of chronic wounds have contributed to the interest in hyperbaric therapy. Chronic wound care now accounts for $50 billion in expenditures and is growing as the population with chronic wounds increases.[1] The ability to effect the chronic wound environment with the application of hyperbaric oxygen therapy has become a fundamental in treatment protocols in certain wound conditions. Many Medicare intermediaries recognize the use of hyperbaric oxygen therapy for the treatment of patient conditions. There are as many as 15 covered indications for the application of hyperbaric treatment for wound and medical conditions recognized by recent LCDs.[2] Chronic wound care has led to growth in hyperbaric medicine as hospitals open wound centers to address the growing patient population with non-healing wounds. Companies directing development of wound centers to treat chronic wounds have accounted for initiating over 720 centers that deliver services.[6,7] Hyperbaric therapy is included in the wound centers to treat chronic wounds, noting the benefit of hyperoxygenation of the plasma-driving oxygen tensions in chronic wounds.[4] Monoplace chambers are used in the majority of these centers to provide hyperbaric treatment. The relative ease in placement and operational functionality simplifies the build-out and shortens the center timeline to the centers being operational. The beneficial effects in a chronic wound of stimulating angiogenesis, bactericidal effects, margination of peripheral stem cells and influence on growth factors are but a few of the beneficial effects of hyperbaric therapy.[4] New horizons in hyperbaric medicine are suggested in recent publications. Preliminary reports such as the one by Harch et al., suggest possible benefit in treating post-concussive syndrome and post-traumatic stress disorder in military subjects.[7] Continued interest in new and beneficial application of hyperbaric oxygen therapy, combined with growth in clinical practice of hyperbaric medicine, may lead to opportunities for growth of specialty practice.

Regulatory and Credentialing Requirements

Given such rapid expansion of hyperbaric centers, training and education to provide qualified personnel, and clinicians to provide services and operate the chambers, becomes apparent. Provision of services by qualified personnel may become a requisite to facility reimbursement by Medicare intermediaries. In a recent LCD draft, Novitas outlined more stringent training and education requirements for oversight and chamber operations.[2] Physicians would be expected to be able to provide evaluation, diagnostic and treatment prescribing services for patients. In addition to state licensure and ACLS training for physicians to oversee hyperbaric treatments, the LCD outlines a two-year process for either fellowship training of physicians or combined education and training, whereby 25 treatments per year have been provided, 25 treatments were proctored by a qualified hyperbaric physician and ongoing professional practice evaluation of 100 non-proctored cases were reviewed.[2] Each facility providing services must have a safety director. The safety director is to have completed a hyperbaric safety course, hold state licensure and ACLS certifications, and also hold certification in hyperbaric medicine or a certificate of added qualification in hyperbaric medicine.[2] Each facility, in addition to a qualified physician, must supply nursing, clinical and technical staff who have completed a 40-hour course, ACLS certification and certification in hyperbaric medicine of CAQ by the American Board of Wound Healing (ABWH), Baromedical Nursing Association (BNA), or the National Board of Diving and Hyperbaric Medical Technology (NBDHMT). At least one qualified staff member should be present any time patients are present in the hyperbaric facility.

Certification and Credentialing

Most practitioners in hyperbaric medicine have come to the field subsequent to training in other fields. If Medicare intermediaries follow the Novitas requirements, certification in hyperbaric medicine may be advantageous for the physician in order to provide services. Fellowship training would require leaving their practice for a year. Having a practice track that period would lead to certification and is necessary for many in the field to validate competency. The American Board of Wound Healing offers a track to certification of added qualification for physicians in hyperbaric medicine. The ABWH offers certification through a practice pathway for physicians in the field of hyperbaric medicine. Currently, this is the only remaining pathway to certification through a practice pathway. The ABWH allows for a physician engaged in the field to become certified while remaining in practice, and provides the opportunity for certification as a certified hyperbaric and wound specialist (CHWS) and certified hyperbaric specialist (CHS). UHMS has closed the practice track for physicians.[3]

Hospital-based and non-hospital affiliated centers have the responsibility to credential personnel in hyperbaric medicine, yet there are no national standards to guide the process. This is apparent in the varied approaches and required qualifications by hospitals in the credentialing of physicians. Initial oversight and proctoring may be overlooked. Often, there are no ongoing educational requirements for hyperbaric specific CME required by local re-credentialing processes. The American College of Hyperbaric Medicine has provided guidelines for the credentialing of physicians to supervise hyperbaric treatments.[3] This proactive document outlines standards for oversight of hyperbaric services by physicians who are reflective of national expectations for initial training and for re-credentialing. Realizing differences between hospital-based and non-hospital affiliated centers, criteria are presented for each scenario.

Once a center is credentialed, ongoing education is important in the development of staff and personnel. Examining the intent of recent LCD requirements, providers who intend to stay in the field should plan to seek added qualifications and validation through certification. Furthermore, the professional organizations—for example, the American College of Hyperbaric Medicine (ACHM) and Undersea and Hyperbaric Medical Society (UHMS)—offer opportunities for professionalism and collegiality. Membership and participation should be encouraged. The ACHM has offered a radiation registry where members have participated by submitting cases. This has become a robust data base that is helpful in advancing and supporting the practice of hyperbaric treatment in caring for patients affected by radiation therapies.

Conclusion

Hyperbaric medicine has seen considerable growth in the past 10 years. The rapid expansion of facilities offering hyperbaric services has been good for the field. While challenges with credentialing and training remain, they can be addressed through current certification and professional organizational leadership. Practitioners and staff involved in the delivery of hyperbaric services have a path to validate their knowledge and clinical skill by certification. Ongoing professional activities through the College of Hyperbaric Medicine and other professional organizations provide unique opportunities for clinicians. W

Monoplace hyperbaric chamber


Multiplace Chamber

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* Dr Bohn is the president of the American Board of Wound Healing.

On the Hill

An Update on Veterans Access to Care Law

by J. Prigozen, MD, FAPWHc

Chair, Legislative Committee, Academy of Physicians in Wound Healing (APWH)

Director, Expert Health Solutions USA

On June 10th the US Senate passed Bill S. 2450, the Veterans' Access to Care through Choice, Accountability and Transparency Act of 2014. This was followed on August 1, 2014, with the passage of an identical bill, H.R. 3230, by the House of Representatives. President Barack Obama signed this bill into law on Thursday, August 7, 2014. This law gives the Veterans Health Administration (VHA) authority to pay providers (e.g. physicians), who are outside the VHA system, for rendering treatment to US military veterans who have not been treated within the VHA system in a timely manner. As of October 1, 2014, the VHA's Chief Business Office will have the authority to pay for hospital care and medical services furnished by eligible providers to eligible veterans outside the VHA. Eligible veterans are those who are enrolled in the patient enrollment system of the Department of Veterans Affairs (DVA); have not received hospital care or medical services from the DVA, despite having contacted them to receive an initial appointment; whose initial appointment with the VHA system is outside of the current wait-time goals of the VHA (30 days); live more than 40 miles from the nearest DVA medical facility, or in a state without a DVA medical facility capable of treating their health condition. Health care providers outside the VHA will be eligible to treat the above noted veterans and be reimbursed by the DVA through Medicare payment systems for the services provided, as long as that provider is currently participating in the Medicare program. This reimbursement will also be provided to any Federally-qualified health center treating eligible veterans.

According to this law, veterans who have already attempted to receive care through the VHA, and have not gotten this care or are not reasonably expected to do so within the VHA's accepted wait-time goals, should receive a letter explaining their eligibility. Those veterans who do not receive notification, or who have not attempted to receive care at a VHA facility, are able to contact their Veterans Affairs Office by phone or website to apply for a Choice Card. This card will have all of the necessary information to show that the patient is eligible for care by non-DVA providers, and will have contact and billing submission information for the providers who elect to treat these military veterans. Veterans are generally required to pay copays of $15 per visit to a primary care provider, and $50 per visit to a specialist. Those who are considered to have a service related disability of more than 50% may have reduced copays. In addition, those who have been deemed catastrophically disabled, or have been prisoners of war, are not required to pay for any care out of pocket.

I hope this information is helpful for those interested in giving back to our US veterans.

For additional information related to treating our veteran military service personnel, please go online to *www.va.gov/healthbenefits*. The Veterans Administration can be reached by phone at 877-222-VETS.

A portion of this information was made available as an e-brief to APWH members prior to this publication. For more information, please visit us at *www.apwh.org*

Calling All Vascular Specialists

For more than two and a half decades, The International Symposium on Endovascular Therapy (ISET) has been honored to stand apart as a global leader in vascular education. In 2015, ISET will celebrate 27 years with another powerhouse program of content endorsed by a dozen national and international organizations, and new for 2015, a state-wide endorsement from the Florida Vascular Society. ISET's multidisciplinary approach to education not only welcomes, but relies on contributions from the full spectrum of physicians and allied health professionals who treat patients with cardiac and vascular disease.

ISET convenes specialists and support staff trained in interventional radiology, vascular surgery, vascular medicine and interventional cardiology. These dedicated professionals come from around the globe to present lectures, conduct case reviews, offer commentary to accompany live cases, participate in debates, serve as operators during live case demonstrations, or fulfill CME and educational needs. Others submit research to ISET's International Call for Abstracts to reach an even wider audience through journal publication.

The Full Spectrum of Vascular Topics

Over the years, ISET has provided the members of the interventional and surgical community with the cutting-edge information they have needed to know, not just at the moment but for the future. By addressing significant issues as they first develop, ISET prepares practitioners for coming advances that will affect the way they approach and conduct their work, even years later. Attendees can choose to attend focused pre-ISET symposia over the weekend, or attend ISET at large and experience the ISET Main Arena. Clinical highlights of ISET 2015 are as follows:

- **Acute Limb Ischemia**
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A pioneer of the live case demonstration, ISET utilizes the latest technology and educational tools to engage the audience in an interactive learning experience. As in the past, carefully selected cases will originate from around the United States and overseas. ISET features a 58' Cinematic Widescreen displaying content in Ultra-High Definition. Among ISET's many opportunities to network with colleagues and industry, the Big Game will be shown on Super Sunday in astounding size and image quality.

South Florida's Most Magnificent Venue Awaits You

ISET 2015 will take place at the Westin Diplomat Hotel in sunny South Florida. The world-class property offers luxurious accommodations, magnificent views and prime beach access in addition to a pool with waterfall, tennis courts and a golf course, a marina, spa facilities, shops and onsite dining options. All this – and warm South Florida sunshine – awaits you. ISET attendees who venture outside after the meeting will find themselves just minutes from two desirable international destinations: Miami Beach, with its exclusive nightclubs, exotic restaurants and tropical Art Deco fixtures; and Fort Lauderdale, with its vast recreational opportunities, casino and entertainment complexes, sophisticated shops, and fine dining on famous Las Olas Boulevard.

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Call for Abstracts

Deadline: October 1, 2014

ISET attracts high-quality abstract submissions by authors from around the world. Each abstract is carefully reviewed by a panel of experts, and the selected abstracts are presented at the meeting in a variety of formats. The information that comes out of the abstracts adds valuable content to the meeting, and the opportunity to present that information provides an important outlet for researchers seeking dialogue with a wide range of peers.

Chosen abstracts will be presented at ISET 2015 in one or more of the following formats:

- **Electronic poster** available for viewing during ISET
- **Oral presentation** by one of the authors, as part of an ISET session
- **Publication** in the Journal of Vascular and Interventional Radiology

Abstract submissions must describe original research; content may include portions of prior abstracts and/or manuscripts submitted or presented elsewhere.

Submit your abstract online

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NEWS&NEW PRODUCTS

Award Given for Research on 3D Implants Based on Alginate for Wound Care

This year, the German Society for Wound Healing (DGfW) awarded Christine Lämmle for her research during the organization's 17th annual conference in Bochum, Germany. Lämmle researched the use of an alginate implant colonized with stem cells, which would be used in autologous soft tissue replacement.

As part of her doctorate work, Lämmle worked on this partnership project run by the director of the Hohenstein Institute's Department for Hygiene, Environment and Medicine, Prof. Dr. Dirk Höfer; and the AG Experimentelle Plastische Chirurgie at the Bergmannsheil BG University Clinic, Bochum, led by PD Dr. T. Hirsch and Dr. F. Jacobsen.

Christine Lämmle awarded for her research at the organization's 17th annual conference in Bochum, Germany.

The research, aimed at converting the body's own stem cells into adipocytes (fat cells) and colonizing them on 3D implants, may help in treating soft tissue that has been damaged. Alginate implants are thought to be a very promising alternative. The development was based on earlier research conducted at the Hohenstein Institute, which combined biopolymers and stem cells in replacement soft tissue, and on the expertise of Bergmannsheil's research in tissue replacement and wound healing.

Read more at: *www.innovationintextiles.com/researcher-wins-prize-for-3d-implants-based-on-alginate-for-wound-care/*

RestorixHealth® Expands Senior Management Leadership Team

RestorixHealth, a leader in developing and managing comprehensive wound care centers, is pleased to announce that Timothy Mills has joined their leadership team in the capacity of Vice President of Business Development.

Timothy comes to RestorixHealth with more than 25 years of senior sales and business development experience, delivering services and solutions to the hospital and health system marketplace. His extensive experience in executive sales positions will be an asset as he helps lead RestorixHealth on an upward trajectory.

"We are extremely pleased that Timothy has joined our company," said Steve McLaughlin, CEO of RestorixHealth. "We have no doubt he will prove to be a great leader and a catalyst for further company growth. We are thrilled to welcome him as a part of our team."

Mr. Mills has been a frequent speaker and is an active member of the Healthcare Financial Management Association (HFMA), the Medical Group Management Association (MGMA), the Healthcare Information Management Systems Society (HIMSS) and the World Health Congress.

Prior to joining RestorixHealth, Mr. Mills most recently served as senior vice president at Avisena, where he increased new sales into the organization by 185% over the most recent 24 months of sales operations.

Read more: *http://www.digitaljournal.com/pr/2100840#ixzz39e4UoacI*

The Association for the Advancement of Wound Care Announces International Partnerships and the Creation of a Joint Paper on Multidisciplinary Wound Healing

The Association for the Advancement of Wound Care (AAWC) is pleased to have partnered with the European Wound Management Association (EWMA) and the Australian Wound Management Association (AWMA) to develop an unprecedented guidance document entitled, "Managing Wounds as a Team."

"AAWC is extremely pleased to have worked collaboratively with EWMA and AWMA to create a patient-centered, multidisciplinary document for all health care professionals who seeks to shift the paradigm regarding how practitioners approach patient care, specifically wound healing. The ultimate goal is for providers to practice as a true, multidisciplinary team—a team where the patient is at the center and advocates also play a critical role," stated Dr. Robert J. Snyder, former president of AAWC and one of the co-authors of the manuscript.

In partnership with EWMA since 2008 and AWMA since 2013, the AAWC looks forward to continued collaboration with these and other international associations. Read the joint international paper in the Journal of Wound Care.

Source: Association for the Advancement of Wound Care

WTC ADVERTISER'S INDEX

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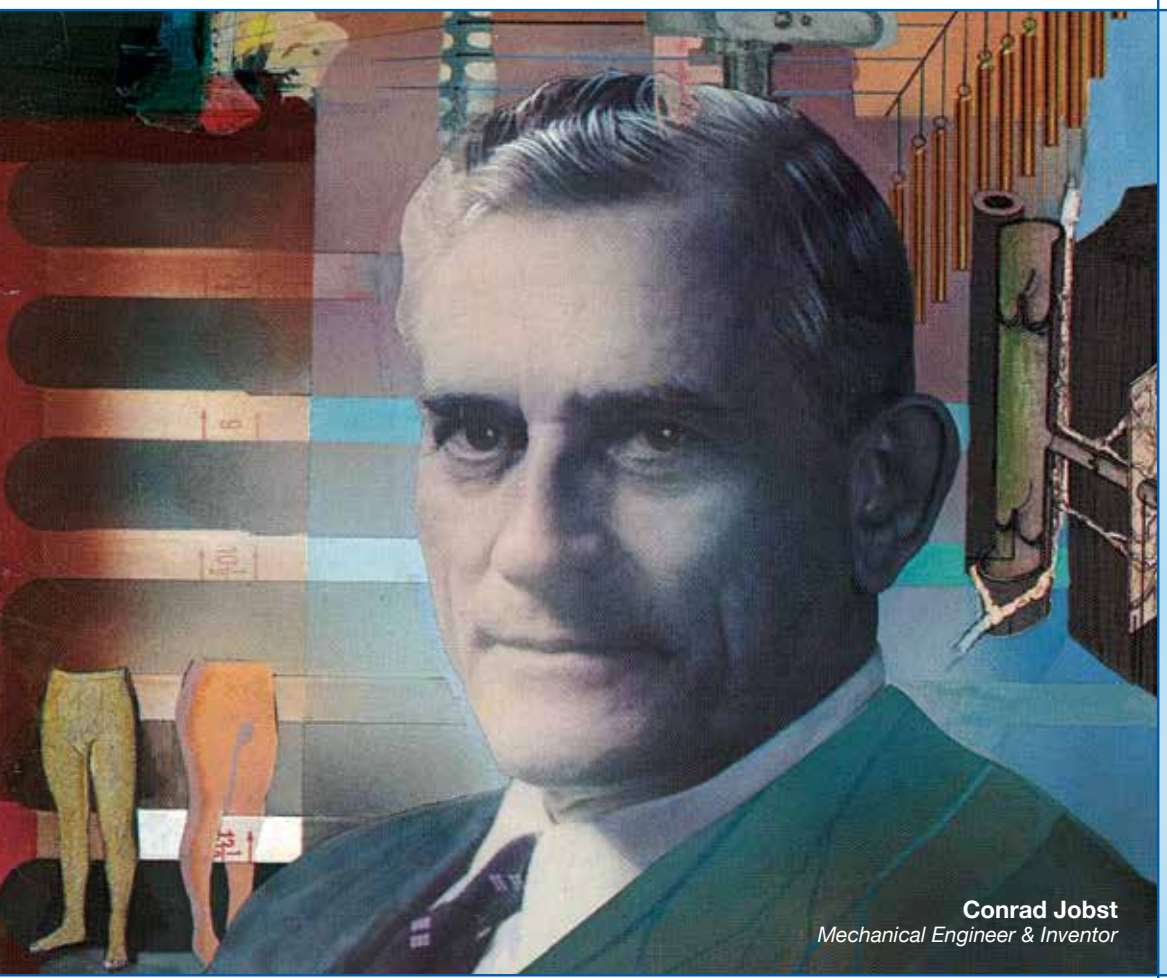

Conrad Jobst
Mechanical Engineer & Inventor

Advancing the vision

Conrad Jobst dedicated his life and expertise to the development of gradient compression garments to better relieve the symptoms of venous disease. Mr. Jobst suffered from vascular disease and his initial line of elastic "stockings" has now evolved into an extensive portfolio of advanced wound care and compression therapy products for the treatment of venous and lymphatic diseases.

In 1995, in association with the American Venous Forum, BSN-JOBST initiated the **BSN-JOBST Research Fellowship in Venous and Lymphatic Diseases** to further Conrad's legacy of innovation. For almost 20 years, the research developed by grant recipients has helped advance the understanding and treatment of vein diseases.

BSN medical invites those interested in applying for the 2015 Research Fellowship to submit an abstract for consideration. **To learn more, please visit veinforum.org**

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Introducing Health Support® Procedure Pak Compression Stockings from CAROLON.

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