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Inside

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Physicians, nurses must re-educate themselves about pain management

Patients in real pain are undermedicated and suffer needlessly

Diane Krasner's deep interest in chronic wound pain was not spurred by intellectual curiosity or even by working as a nurse with patients who suffered chronic wound pain. It began when she experienced the pain herself and realized that many patients suffered pain needlessly because they thought it was unavoidable, while others appealed for pain relief but were ignored by a medical establishment mired in the Draconian "no pain, no gain" mentality.

After undergoing surgery several years ago, Krasner developed a serious surgical wound infection that required debridement several times. Each time, says Krasner, the pain was excruciating. In the midst of one of the debridement procedures, Krasner, in tears, piped up about the pain.

"You're hurting me!" she told the doctor. She says he looked at her with a surprised expression, as if to say, "Oh, there's a patient attached to this wound."

"You've been doing this to patients for 10 years," the doctor commented. "You're right," Krasner said, "and I won't do it anymore." With that, her wound care career started unexpectedly on a new track.

Soon thereafter, Krasner chose to focus on venous ulcer pain as the subject of her doctoral dissertation. She received her PhD and now is a postdoctoral fellow at the Johns Hopkins University School of Nursing in Baltimore. She also holds RN, CETN, and CWS credentials.

Who says venous ulcers aren't painful?

Krasner searched the medical literature but found little information about wound pain. In the work she did find, she noticed a common underlying assumption throughout: Venous ulcers are not painful, but arterial ulcers are. This fallacy was even suggested as a distinguishing characteristic when trying to make a diagnosis. Other authors suggested that pain was an unavoidable consequence of chronic wounds.

If professionals believed this, it would follow that patients might hold the same beliefs, Krasner thought. Therefore, patients wouldn't request pain medications even when they were greatly needed because patients believed pain was an unavoidable consequence of chronic wounds, and clinicians would

not regularly assess for pain. The results are the same in both scenarios: Patients in real pain are undermedicated, and they suffer needlessly.

The apparent assumption that pressure ulcers aren't painful because the nerve endings are gone is only partially true; there are still plenty of live sensory receptors around the wound edges and in underlying tissue. Krasner laments that even though the most current research clearly shows that pain and chronic wounds are usually partners, many clinicians still harbor misconceptions about wound pain and pain management.

Krasner noted that interest in and awareness of chronic wound pain seemed to increase in the late 1980s, primarily in the United Kingdom. Researchers there began to look at the effects of pain on quality of life. Krasner began seeing work challenging the notion that venous ulcers aren't painful. Some research showed that 35% to 75% of venous ulcer patients had pain, and that for some patients, pain was the worst symptom. In another study, 59% of patients reported having wound pain of some type, while only 2% were given analgesics for the pain. "This was a real important message that we weren't attending to this problem," Krasner says.

State of pain management is hurting

The overall state of pain management is bad, according to **Margo McCaffery**, RN, MS, a Los Angeles-based nursing consultant. Throughout the American medical establishment, pain is under-recognized and undertreated, she says. "Many people don't consider that a patient's pain is real. Patients give up and figure they just have to endure it," says McCaffery, who is author and editor of a clinical manual on pain management due out in December.[1]

What's frustrating to enlightened wound care professionals is that pain caused by chronic wounds can be reduced with medication. However, there remains a barrier — the persistent myth that patients receiving opioids are liable to become addicted to the painkillers. This is a baseless fear, and there is no evidence that proper prescription of opioids will lead to addiction, says McCaffery. She adds that fewer than 1% of patients receiving opioids become addicted.

Low-level, ongoing wound pain may respond well to anti-inflammatory medications, but as the pain increases, opioids are often indicated. However, physicians are often afraid to prescribe them. Even patients whose pain is well-managed by OTC anti-inflammatories, such as ibuprofen or naproxen sodium, may need stronger medications in preparation for dressing changes and debridement, which often cause acute short-lived pain. Yet McCaffery can't understand why many physicians won't consider narcotic painkillers even for these discrete events.

"More people than before realize the problem of wound pain and treatment, but there's still an incredible phobia around the management of pain," says **Frank D. Ferris**, MD, a palliative care physician at the Temmy Latner Centre for Palliative Care at Mount Sinai Hospital in Toronto. "Many people perceive barriers, not the least of which is that they think if you start opioids that the patient will get addicted. That really is a myth. There's no data to support the contention. In fact it's quite contrary. If you use opioids in a situation where you understand the pathology, the patient will do well and get off the opioids and there will be no problem."

Ferris notes that in some circumstances, unrelieved pain can actually create further physical damage and perpetuate the problem. The goal of pain management should be to treat and minimize pain early in treatment, he emphasizes.

Lia van Rijswijk, RN, ET, a nurse consultant in Newtown, PA, also underscores the point that wounds can cause severe pain, and that less-than-adequate pain control is common in patients with chronic wounds. She adds that many patients, particularly older or immobile people, cannot communicate their level of pain, so nurses must be vigilant for signs of pain, such as grimaces or moans when a patient is turned or during dressing changes. "The patient may not move in bed because that motion may cause pain, and that immobility can cause even more pressure sores," says van Rijswijk.

Van Rijswijk explains that all skin trauma and breakdown causes nociceptive pain (pain stimulated by injury). In a chapter to be published in McCaffery's book, she writes, "Even when the dermis and its sensory receptors are absent, as may be the case in full-thickness wounds (such as deep pressure ulcers and third-degree burns), the wound edges as well as the underlying tissues will contain sensory receptors. Also, sensations such as pressure (e.g., from sitting or wound packing materials) and movement (e.g., wound manipulation) will be perceived by the proprioceptive receptors in the underlying fascia, muscles, tendons and ligaments."[1] She adds that peripheral nerves will regenerate in healing wounds. The immature nerve tissues produced during this process are hypersensitive to wound care procedures and topical agents.

It is also the nurse's responsibility to inform physicians when patients are in pain, McCaffery adds. "Nurses need to know that their job is to let the physician know when the patient needs pain medication," she says. Clinicians also should make regular use of

pain assessment tools, such as the pain analog scale or the Wong Baker FACES pain rating scale, says Ferris.

Despite assertions to the contrary, wound pain is real and it often goes undertreated. However, it can easily be controlled if only clinicians would replace their misconceptions about pain control with facts.

Reference

1. McCaffery M, Pasero C. *Pain: Clinical Manual*. 2nd ed. St. Louis: Mosby; in press. ■

New pain models better reflect patient experience

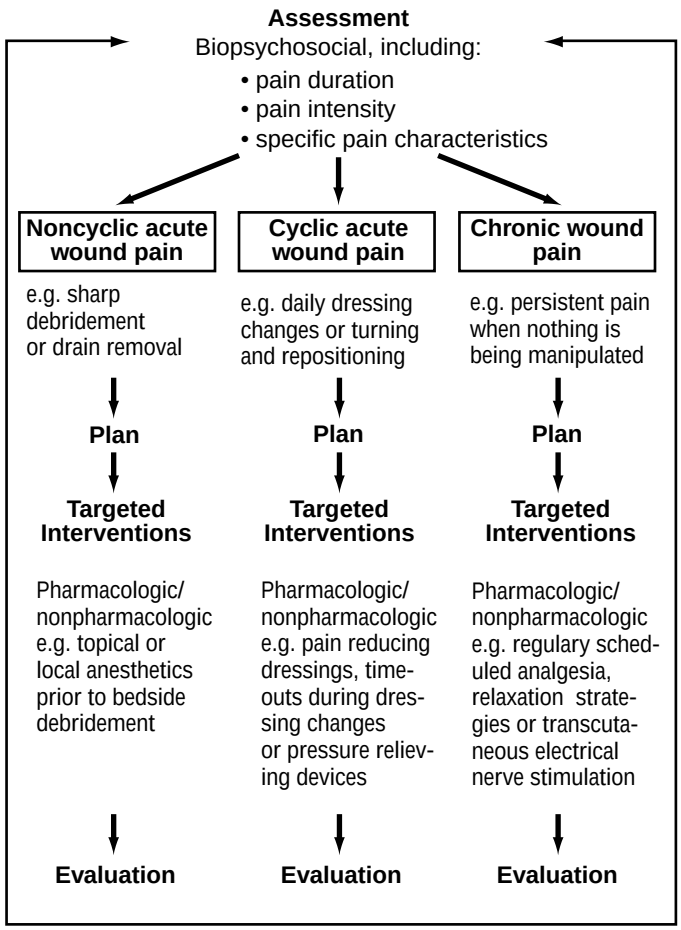
Pain assessment measure needed for each wound

The medical community has traditionally classified pain in two categories: acute (pain lasting for less than six months) or chronic (pain lasting for more than six months). A slight modification came in 1986 when the National Institutes of Health Consensus Development Conference on Pain created three categories: acute, chronic malignant, and chronic non-malignant. Neither system is sufficient for describing or categorizing the varied pain experiences of patients with chronic wounds.

Clinicians and researchers recently have introduced new pain algorithms specific to wound care. One is the Chronic Wound Pain Experience (CWPE) Model, designed in 1995 by **Diane Krasner**, PhD, RN, CETN, CWS, a postdoctoral fellow at the Johns Hopkins University School of Nursing in Baltimore. The CWPE divides pain into three categories: noncyclic acute wound pain, cyclic acute wound pain, and chronic wound pain. **(See chart, above right.)**

Noncyclic acute wound pain occurs during distinct episodes, such as sharp debridement or drain removal. Cyclic acute wound pain is periodic acute pain that recurs as a result of repeated treatments or interventions, such as daily dressing changes, turning, or repositioning. Chronic wound pain is persistent pain that occurs without manipulation, such as the throbbing of an abdominal wound when a patient is just lying in bed, according to Krasner.

Krasner says chronic wound patients may experience the three types of pain separately or simultaneously. She says the model can help wound care providers assess wound pain more accurately and therefore apply the most effective pain-prevention or pain-reduction interventions, because the type of pain should dictate the measures taken to give the patient relief.



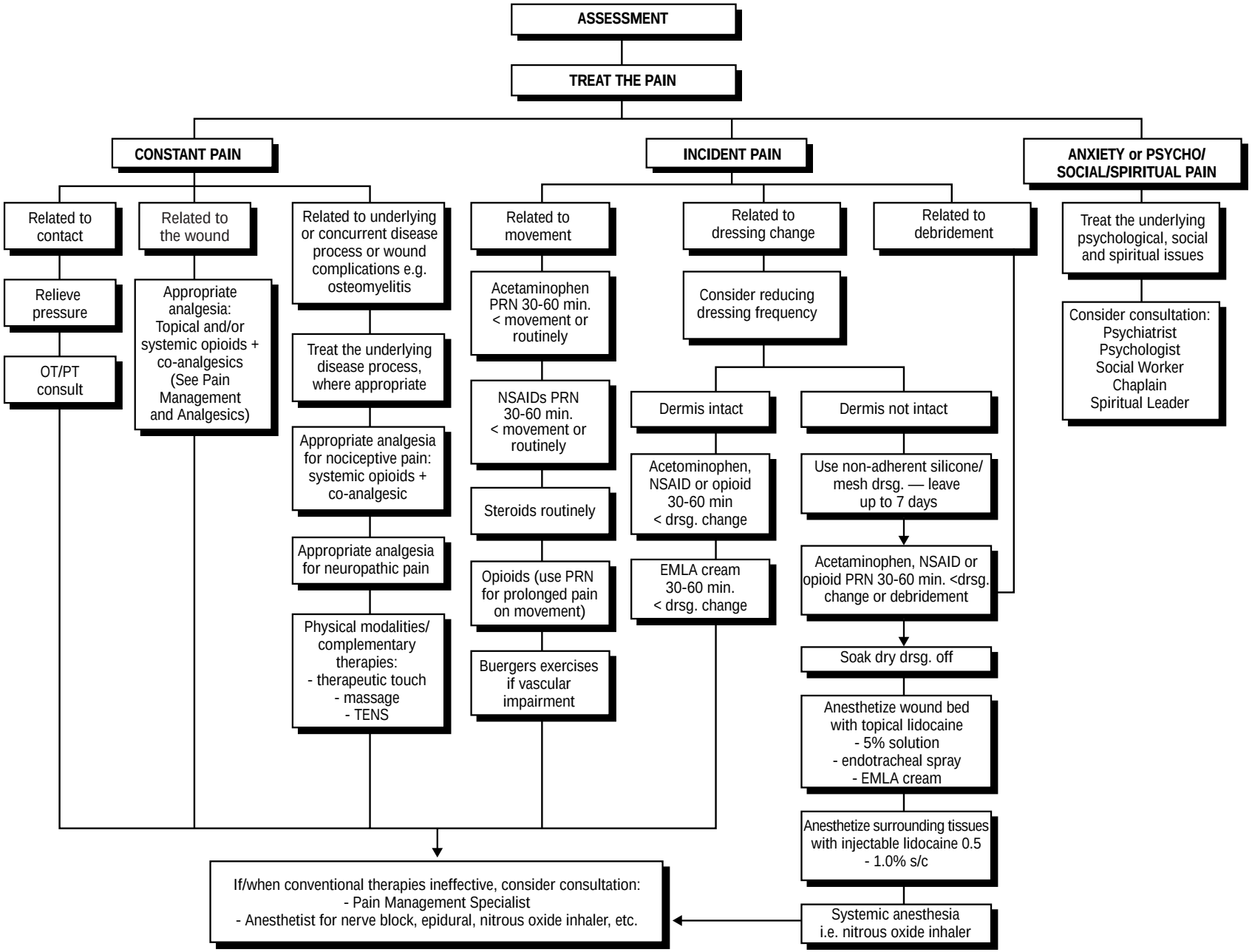
Source: © Copyright 1995 by Diane Krasner, PhD, RN, CETN.

For example, application of a topical anesthetic compress before sharp debridement may be more effective for reducing the noncyclic acute wound pain that debridement can cause. To reduce the cyclic acute wound pain that may stem from dressing changes, an oral analgesic an hour before the change might be in order. For chronic wound pain, around-the-clock oral medications may be the best route, along with adjunct therapy such as wound cleansing and pain-reducing dressings.

Though these measures seem like common sense, Krasner notes that many clinicians don't take any of these measures, often leaving the patient to suffer unnecessarily.

Another algorithm for pain management was developed recently by **Frank Ferris**, MD, a palliative care

(Continued on page 125)



Source: ©Copyright Caremark Ltd. and Frank D. Ferris, MD, 1998.

physician at the Temmy Latner Centre for Palliative Care at Mount Sinai Hospital in Toronto. **(See chart, p. 124.)** Ferris categorized three major types of wound pain: constant pain, incident pain, and anxiety or psychosocial/spiritual pain.

Constant pain can result simply from the wound's presence, contact between the wound and other surfaces, or from underlying or concurrent disease processes or complications, according to Ferris. Incident pain is related to movement, dressing changes, and debridement. Anxiety or psychosocial/spiritual pain, such as depression, can result from the physical pain caused by the wound and related activities. This type of pain also can result in more intense physical sensations, Ferris explains. For instance, if a patient is convinced that an upcoming dressing change will be painful because no pain management measures are taken, that patient's experience of wound pain may increase needlessly. Studies also have shown that the presence of a wound can have a notable adverse effect on quality of life. Chronic wound patients often report that they feel socially isolated, depressed, and anxious. These phenomena all would fit into the category of psychosocial/spiritual pain.

As with the CWPE model, a thorough assessment of each patient is crucial to determine the type of pain a patient experiences. This information will allow wound care professionals to select the most effective interventions, according to Ferris. "Every wound needs to be assessed with an appropriate pain assessment measure," he says. "We have to understand the wound's etiology and have a sense of its pathophysiology. Then we need to apply different treatment interventions. We also need an understanding of the pharmacology of medications we're using and the associated psychosocial/spiritual pain that may be present," he says. ■

Practical pain relief: Drugs not the only answer

Some fundamental suggestions for reducing pain

Clinicians attempting to relieve the pain suffered by patients who have chronic wounds often rely on medications ranging in strength from over-the-counter anti-inflammatories to opioids. Drugs are certainly essential components in the pain relief equation, but they are not the only measures available to wound care professionals.

"We're so focused on popping pills that we've forgotten lots of fundamental things to alleviate pain," says **Lia van Rijswijk**, RN, ET, a nurse consultant in Newtown, PA. Rijswijk says there are many simple measures clinicians can take to help alleviate pain, but that unfortunately have not become common practices in the field.

Listed below are suggested actions for providers to help reduce pain for chronic wound patients. The suggestions were compiled from interviews and writings from three sources: **Frank Ferris**, MD, a palliative care physician at the Temmy Latner Centre for Palliative Care at Mount Sinai Hospital in Toronto; **Diane Krasner**, PhD, RN, CETN, CWS, a postdoctoral fellow at the Johns Hopkins University School of Nursing in Baltimore who has focused her research on pain related to venous ulcers; and Rijswijk.

• **Immobilize the wound.** Postoperative patients automatically hold their wounds when they get out of bed, because that action reduces their pain. Immobilization can be achieved with dressings that adhere well to healthy tissue surrounding the wound, but not to the wound itself.

• **Don't let the dressing adhere to any part of the wound itself.** When this occurs, pain can increase a great deal because every time the patient moves, the dressing pulls at the inside of the wound.

• **Keep wounds moist and don't expose them to air.** Drying exposed nerve endings and air flowing against exposed nerves can cause great pain. Think of the relief that a simple adhesive bandage provides for a minor cut or abrasion.

• **Clean wounds regularly to eliminate the build-up of exudate in the wound bed, which can cause pressure and pain.** Remove exudate by gentle flushing, low-pressure irrigation, or in selected cases with a whirlpool bath.

• **Use lift sheets instead of draw sheets to move patients.**

• **Use gentle wound cleansers.** Avoid antiseptics such as hydrogen peroxide and povidone iodine unless the patient has been anesthetized. Heat cleansers to body temperature before use.

• **Remove dead tissue because it can produce chemicals that irritate nociceptive nerve terminals.**

• **Protect wound margins with skin sealants, ointments, or skin barriers.**

• **Choose debridement options carefully, keeping in mind the need to assess and control pain regularly.** There are many topical anesthetics available for use before sharp debridement. Use autolytic debridement when feasible. Avoid enzymatic debridement, which has the potential to cause a great deal of pain.

• **Reduce pressure on wounds.** For example, pack deep wounds lightly with soft, nonadherent materials, and position the patient to reduce pressure on wounds from their support surfaces.

• **Allow patients to perform their own dressing changes when possible, or to call "time out" when the procedure becomes painful.**

• **Time dressing changes to coincide with periods when the patient will be most prepared for the procedure.** Talk to the patient to find out if there is a particular time of day when he or she would prefer to have dressings changed.

• **Prior to dressing changes, give patients an analgesic, then start the procedure when the medicine's effect reaches its peak.**

• **Finally, consider patients holistically and try to understand and empathize with what they are going through.** Even small measures can have a powerful effect, such as holding a person's hand during a procedure, hugging regularly, offering words of encouragement, or just listening. All of these responses can ease a patient's feelings of frustration, depression, helplessness, and anguish, all of which often accompany chronic wounds. ■

WOUND SOLUTIONS

Sterile vs. nonsterile: Controversy continues

Individual assessments necessary

Question: Are sterile gloves needed when someone uses a "no-touch" technique when applying dressings? I've been told that at some facilities, nurses are not required to wear sterile gloves, but I'd like to know what the accepted practice is.

Answer: Your question raises a number of important wound care issues, such as the meanings of the terms sterile, clean, no-touch, and nonsterile, and the reimbursement, ethical, and legal implications for using or not using sterile techniques. Earlier this year, several wound care experts from Canada and the United States met in Toronto to discuss these and related issues. Toronto-based Dumex Medical Surgical Products Ltd. sponsored the program.

The panel's goal was to examine the advantages and disadvantages of sterile vs. nonsterile wound care. Proceedings of the meeting have been published in a monograph, and excerpts of the monograph follow below.[1] **(To obtain a copy of the complete monograph, see Editor's note at end of article.)** The meeting participants cautioned that their conclusions and recommendations are not intended to be definitive answers to the debate about sterile vs. nonsterile wound care, but a starting point designed to raise the awareness of wound care professionals.

The panel had four objectives:

1. Define sterile vs. nonsterile wound care.

2. Describe specific issues related to sterile vs. nonsterile wound care options.

3. Assess and critically evaluate the research literature and evidence base for sterile vs. nonsterile wound care.

4. Identify specific recommendations for clinical practice that may be appropriate for the readers of the monograph.

Terms 'sterile,' 'clean' used inconsistently

The debate about sterile technique vs. clean technique has been ongoing for decades now, but there is no consensus on which approach is applicable under various given circumstances. Even the actual terms sterile, clean, and nonsterile have many different meanings for health care providers, and the definitions clinicians attribute to those words are often overly broad and inconsistent with Clinical Practice Guidelines for the Treatment of Pressure Ulcers set forth by the Agency for Health Care Policy and Research (AHCPR).

In one unpublished study, about half the respondents said they would use sterile gloves and sterile irrigant when applying sterile technique, and about a quarter said they'd use sterile dressings with sterile technique. The majority said they would save the unused irrigant and reuse the scissors.[2]

Because the definitions in this discussion are not consistent, the subject becomes rather complex and the standard of care is unclear. **(See box of definitions, p. 127.)**

The panel agreed that there are no definitive answers to the sterile vs. nonsterile controversy, and that the assessment of individual patients is necessary for wound care professionals to make decisions about sterile vs. nonsterile technique so the bioburden is minimized and no harm is done.

"When you look at a chronic wound, there is always a bacterial load; it may be contaminated, colonized, or infected. And it is important to make distinctions

Definitions of terms

The wound care panel convened in Toronto earlier this year by Toronto-based Dumex Medical Surgical Products Ltd. used the following definitions of commonly used terms for purposes of its discussion:

Aseptic technique: the purposeful prevention of the transfer of infection from one person to another by keeping the microbial count to an irreducible minimum.

Clean: containing no foreign material or debris.

Clean dressing: dressing that is not sterile but is free of environmental contaminants, such as water damage, dust, pest and rodent contaminants, and gross soiling.

Contaminated: containing bacteria, other microorganisms, or foreign material.

Hand washing: the cornerstone of any infection-control program. Hand washing should be of sufficient duration to remove the transient microbial flora (10 seconds of soap and friction, followed by rinsing with running water).

No-touch technique: method of changing surface dressings without touching the wound or the surface of any dressing that may be in contact with the wound. Adherent dressings should be grasped by the corner and removed slowly, whereas gauze dressings can be pinched in the center and lifted off.

Nonsterile: refers either to an item that has not been put through a sterilization procedure, or to an item that no longer retains its sterile integrity due to shelf-life expiration, exposure to extreme temperature, humidity, moisture, dust, lint, or other contaminants.

Sterile: the absence of all microbes, including spores. The four sterilization processes that are commonly used in manufacturing and in health care institutions today include steam, dry heat, ethylene oxide gas, and gas plasma.

Sterilized: refers to an item that has undergone a sterilization process but that has not been packaged so as to guarantee its sterility over time.

Universal precautions: when blood-body fluid precautions are consistently used for all patients, irrespective of diagnosis. ■

about what technique you are going to use at those three levels," said panel member **Gary Sibbald**, MD, a dermatologist and associate professor of medicine at the University of Toronto.

With regard to wound care technique, the panel noted that safety concerns and reduction in risk to the patient are paramount. And because the health care provider is frequently a vector for the spread of infection, proper hand washing should be considered just as important as the type of wound care technique applied.

"The use of universal precautions is without doubt the most essential and reasonably prudent care approach," the panel said, defining universal precautions as "a system of infection control which assumes that every direct contact with body fluid is potentially infectious," or "when blood-body fluid precautions are consistently used for all patients, irrespective of diagnosis." Still, details of gloving, gowning, barriers, masks, instruments, and product selection will vary depending on setting, wound type, and real-world considerations.

In a 1994 article, no-touch technique was advocated as a reasonable compromise until research on this issue was available to guide practice.[3] In no-touch technique, dressings, solutions, and instruments that come into direct contact with the wound are sterile. Supplies that do not come into direct contact with the wound, such as barriers and gloves, are nonsterile. This technique, the authors wrote, provides an optimal level of sterility while saving time and money without compromising the gold standard of sterile wound care.[3]

Also in 1994, the AHCPR issued its Clinical Practice Guideline for Treatment of Pressure Ulcers,[4] which suggests that clean technique be used for pressure ulcer care. The panel noted that the AHCPR recommendations were based on expert opinion and not on evidence-based research.

The panel proposed that clinicians evaluate individual patient situations and make educated, common-sense decisions when choosing wound care techniques.

Product selection

The panel cautioned that health care providers have a responsibility to use "common sense and good judgment" when selecting the status (sterile or nonsterile) of products used in wound care. The panel's preference is to use sterile products whenever possible. One reason for this is that there are no regulatory specifications whatsoever regarding the bioburden of products that are not sterilized.

"Products that are sterile, that are single-use or unit-dose are safest and most user friendly," said the panel.

"Minimizing cross-contamination and the transfer of microbes by the use of aseptic technique and a conscious, careful attitude can help us reduce contamination and minimize harm. Individual assessment of the patient situation and the wound is essential for defining the particular parameters of aseptic technique for each patient situation."

The panel's other opinions include the following:

• **High-risk populations:** The panel recommended more conservative treatment whenever possible for high-risk populations, which include patients who are immunocompromised or have concurrent conditions such as hypoxia, impaired perfusion, or malnutrition, and those undergoing radiation therapy. It seems logical, the panel stated, to to err on the side of caution by reducing bioburden and risk of contamination.

• **Reimbursement and legal issues:** The panel suggested that health care providers in the United States review their DMERC surgical dressing policies and other payer policies carefully and use caution when billing for nonsterile wound care supplies for Medicare patients. There also may be a legal risk in using nonsterile products when research supporting such a decision is lacking or inconclusive. Once again, the panel recommended that practitioners should be advocates for their patients and err on the side of caution.

• **Using research study information for decision making:** The panel advised caution when using research studies that address the issue of clean vs. sterile technique, because the scientific foundation for decision making in this area is shaky. Common definitions are lacking, and identification of important variables are often unclear or missing. Still, the panel cited six recent publications as examples of interest in the subject **(see box at right for details)**.

While noting that the sterile vs. nonsterile issue is complex, the panel proposed a number of recommendations to optimize care and reduce bioburden to a minimum, including:

• **Whenever possible, choose wound care products that have been sterilized and are single-use.**

• **Select the correct size of product and minimize waste.**

• **Consider no-touch technique to reduce costs while maintaining sterile wound care.**

• **Be specific with dressing change orders. Specify the exact number and size of dressings to be used.**

• **When making treatment decisions, weigh variables such as wound type, etiology, phase, size, depth, amount of drainage/exudate; the presence of infection and/or odor; the change in pain level; the condition of wound edges and margins; and patient risk factors, medication, and nutritional status.**

• **Educate the health care team about dressing protocols.**

• **Expose colleagues to the issues surrounding sterile vs. nonsterile wound care.**

• **Encourage a team approach to wound care.**

To obtain a free copy of the monograph, contact Dumex Medical Surgical Products Ltd., Toronto, at (800) 463-0106, ext. 248.

Sources of information

The wound care panel convened in Toronto earlier this year by Toronto-based Dumex Medical Surgical Products Ltd. recognized the following publications as valuable research resources:

• Angeras MH, Brandberg A, Falk A, Seeman T. Comparison between sterile saline and tap water for the cleaning of acute traumatic soft tissue wounds. *Europ J Surg* 1992; 158:347-350.

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4. Bergstron N, Bennett MA, Carlson CE, et al. *Treatment of Pressure Ulcers.* Clinical Practice Guideline No. 15. AHCPR Publication No. 95-0652. Rockville, MD: US Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research; December 1994. ■

Product POINTERS

Prediction, prevention of heel pressure ulcers

By **Liza G. Ovington**, PhD, CWS
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Ft. Lauderdale, FL

The treatment of pressure ulcers is an enormous health care expenditure in terms of time and money. Strategies and products for pressure ulcer prevention abound, but evidence of efficacy is rare.

One of the most difficult anatomical areas to be addressed by preventive products is the heel, which is the second most common site of pressure ulcer formation after the sacrum.

Literature shows that the incidence (or number of new cases occurring over a specific time period) of heel pressure ulcers ranges from 19% to 32% of a given population. Prevalence (or number of cases at a specific point in time) of heel pressure ulcers has been documented in four National Pressure Ulcer Prevalence Surveys conducted in 1989, 1991, 1993, and 1995.[1]

The heel is the only anatomical site to show an increase in pressure ulcer prevalence each year (except for a slight decrease in 1995). Prevalence of pressure ulcers in other anatomical sites either remained constant or declined over the course of the surveys. The 1995 survey involved 265 acute care hospitals and 39,874 patients.

Little has been published about the etiology of pressure ulcers on the heels, with more attention given to prevention. A 1997 study tackled the issue of predicting heel pressure ulcers by examining potential contributing factors.[2]

The researchers undertook a comprehensive review of the literature and multidisciplinary discussion to identify more than 150 potential contributing factors. They then carried out a prospective, descriptive cohort study to examine these factors.

The study, which took place in a 280-bed regional hospital, recruited patients from four nursing units that had been shown to have a high prevalence of heel pressure ulcers based on a 1993 survey. Of 432 patients admitted to these units, 209 were enrolled in the study. Reasons for patients not being enrolled were usually related to a transfer from the unit or a short length of stay. Multidisciplinary teams performed chart reviews, collected demographics, and performed assessments of the heels during the course of the study. Of the 209 patients enrolled in the study, 56 (26.8%) developed pressure ulcers on the heel(s).

Data variables between patients who developed heel ulcers and patients who did not were compared and statistically analyzed. The more than 150 potential contributing factors were reduced to fewer than 20 significant factors. Of these, the team eliminated those that related more to prevention than to prediction and those not readily available for use in a predictive tool.

A second prospective descriptive cohort study was then undertaken to validate factors identified in the prior study. Another 291 patients were enrolled. Of the 291 enrolled, 63 (21.7%) developed heel pressure ulcers. Specific variables found to be significantly different (and therefore potentially predictive) between patients who developed ulcers and those who did not are listed below:

- age;
- length of stay;
- admitted with pressure ulcer;
- incontinence;
- limb weakness;
- absent popliteal and posterior tibial pulses;
- circulatory problems of the lower extremities;
- diagnosis of congestive heart failure;
- total Braden risk assessment score;
- Braden subscale scores in moisture and friction/shear.

The team then attempted to devise a predictive tool for the risk of developing a heel ulcer based on these variables. However, they found that no combination of variables gave a higher specificity and sensitivity than the overall Braden Scale. The study concluded that while the Braden Scale may not be perfect, it remains the best available tool for predicting pressure ulcers on the heel.

Commercially Available Heel Positioners and Protectors

Product	Manufacturer	Telephone
Pillo-Boot Lower Leg Positioning Device	Brennen Medical	(800) 328-9105
ProForm Positioners	Creative Bedding Technologies	(800) 526-2158
Heelift Suspension Boot	DM Systems	(800) 254-5438
Foot WAFFLE Air Cushion Foot WAFFLE Air Cushion Slim WAFFLE Heel Elevator	EHOB	(800) 966-3462
Heelcare Cushion	Gaymar Industries	(800) 828-7341
Heelbo Heel Protector	Heelbo	(800) 323-5444
EpiFlex Heel Protectors	Hollister	(800) 323-4060
Medline Positioners	Medline Industries	(888) 701-7546
Heeler	Precision Dynamics	(800) 255-3507
Phase II Multipodus	Restorative Care of America	(800) 627-1595
Cradle Boot Foot Drop Stop	Span America Medical Systems	(800) 888-6752
DAP410 Heel Protector	Sundance Enterprises	(800) 842-0535
Lunax Boot	Lunax Corporation	(800) 264-4144

It may be advisable to pay particular attention to the subscores in moisture and friction/shear with regard to heel ulcers. It is surprising that incontinence and Braden moisture scores were found to be significant in heel ulcer development because many assume that these factors affect the sacral area as opposed to the heels. The study authors posit that there may be physical factors that predispose a patient for incontinence that also affect heel ulcer formation.

The heels are difficult to address in terms of pressure relief for a number of reasons. The heel is a very small area and therefore subject to very high interface pressures as it rests on a surface. Patients often rotate their legs or hips to one side or another and may dislodge or interfere with a positioning device. Patients with fractures of the hip or lower extremity are especially susceptible to heel pressure ulcers, and it is thought that pain and immobility are significant contributors. Hospital sheets may be tucked in tightly, providing little room for the foot at the bottom of the bed.

It has been shown that while a variety of support surfaces (overlays and mattresses) address pressure reduction in the pelvic area, few if any adequately address pressure reduction in the area of the heels. If specialty products designed to address the heel are not properly fitted, they may create pressure in other places on the lower extremity.

Several studies suggest that the appropriate use of a standard hospital head pillow positioned beneath the legs such that the heels are suspended off the bed surface is more effective than many specialty products.[3,4,5] Literature also shows that certain practices thought to aid in prevention of heel ulcers may actually contribute to their development.

Use of a latex glove filled with 260 ml of water to cushion heels was shown to generate interface pressures that were higher than if the heel was simply allowed to rest on the bed. Interface pressure between the heel and the water-filled glove in 40 patients averaged 144.6 mm Hg, while interface pressures between the heel and the bed averaged 126.5 mm Hg.[6]

The most effective strategy is to suspend the heel completely rather than to cushion it. The bottom line for prevention of heel pressure ulcers lies not with any one product but with assessment of risk, ongoing assessment of the heels, and diligence regarding positioning of the patient.

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Braden Scale falls short on dark-skinned patients

Clinicians not trained to assess dark skin

Anyone involved in wound care soon learns of the Braden Scale for Predicting Pressure Sore Risk. The scale, developed by clinicians Barbara Braden and Nancy Bergstrom, is used widely by clinicians to assess patients for the risk of developing pressure ulcers. But it seems that few clinicians, if any, have questioned its value for application to darker-skinned patients.

The potential problem came in a roundabout way to the attention of **Courtney Lyder**, RN, MS, ND, CGNP, associate professor and coordinator of the Gerontological Nurse Practitioner Program at Yale University School of Nursing in New Haven, CT.

Lyder started to consider the possibility that the Braden Scale might not be valid for darker-skinned patients quite by accident after she applied to the National Institutes of Health for a grant to conduct research while pursuing her advanced nursing degree. The agency returned the application with several comments. One noted the possibility that the Braden Scale may not work well for dark-skinned people. Lyder had never considered the matter before, but she turned her attention to finding the answer after she completed her advanced degree.

After conducting a prospective pilot study involving 36 patients age 75 or older in an acute-care setting, Lyder found evidence that the Braden Scale was not predictive for either blacks or Hispanics using the cut-off level on the Braden Scale of 16 or below. In a subsequent larger study involving 74 elderly patients, Lyder concluded that the Braden Scale was predictive for black elders but not for Hispanic elders.

Are clinicians missing early-stage pressure sores?

"The findings were pretty much unexpected," says Lyder. "I don't think we know enough as to why they turned out that way." Lyder is requesting grant money from the NIH to further investigate factors that increase the risk of pressure ulcers in Black and Hispanic people.

In the larger study, 32% of the subjects developed stage I or II pressure sores, which is a much higher incidence than the average reported in acute-care settings, says Lyder. "My theory is that nurses and other health care professionals are not trained to assess color changes in dark skin, so they dismiss an [early-stage pressure sore] until it reaches stage II," Lyder says. "Some studies show that darker people have more severe ulcers for that reason."

In the study report, Lyder wrote that "[The Braden Scale] has not been tested with adequate numbers of black and/or Latino Hispanic elders. Moreover, no studies could be found that evaluated predictive physiological variables (e.g., serum albumin, total protein, hemoglobin, hematocrit, etc.) in either of these ethnic minority populations."[1]

The Braden Scale includes six categories that measure on a scale of one to four the degree to which a patient is limited or impaired. A score of "1" means "completely limited," and a score of four means "no impairment." The Braden Scale considers the following variables:

- how well the patient can respond to pressure-related discomfort;
- how much the skin is exposed to moisture;
- how active the patient is;

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• how well the patient can change and control body position;
• the patient's usual eating pattern;
• friction and shear.

Reference

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New wound ointment derived from oak tree

Clinical data support positive anecdotal results

A wound ointment derived from oak extract is earning kudos from some wound care providers. Amerigel, manufactured by AmerX Health Care Corp. in Clearwater, FL, is formulated for application as a wound dressing for management of pressure ulcers, stasis ulcers, diabetic skin ulcers, cuts, and abrasions, and for skin irritation associated with peristomal care, according to the manufacturer.

One ET nurse who uses Amerigel told *Wound Care* that the ointment has sped the healing of many intractable wounds. "The first time I used it, I saw a wound bed fill up with granulation tissue in four days," says **Carolyn Hewett**, RN, CETN, co-owner of the Specialty Care Center at Helen Ellis Memorial Hospital in Tarpon Springs, FL.

In addition to many positive anecdotal results for Amerigel, there also are some clinical data from a study sponsored by the manufacturer. The study involved 152 patients, 72 of whom had stage I wounds and 80 who had stage II, III, or IV wounds. Twenty-one patients had multiple wounds.

All the stage I wounds healed with no sequelae. Eighty-eight percent of stage II wounds healed in an average of 46 days, 62% of stage II wounds healed in an average of 54 days, and 16% of stage IV wounds healed in an average of 52 days. The manufacturers claim that Amerigel acts to increase blood flow to a wound.

According to Amerigel users, a small percentage of patients can't tolerate the burning sensation that occurs when the ointment is applied.

Amerigel is an over-the-counter product that costs about $15 retail. The cost is lower when the product is purchased through medical supply distributors. ■

Coming in Future Issues

■ Fast, positive outcomes with advanced wound care techniques
■ Starting a wound clinic
■ Gene therapy for wounds closer to reality
■ The future of dressings

CE objectives

After reading this issue of *Wound Care*, participants in the continuing education program should be able to:

• cite the percentage of venous ulcer patients who experience pain;
• explain how, in some circumstances, unrelieved pain can actually create further physical damage;
• list the three pain categories of the Chronic Wound Pain Experience model;
• discuss the safest and most user-friendly wound care products suggested by a panel of wound care experts that met recently in Toronto. ■