

# Wound Care™

***Your independent guide to wound management***

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**April  
1999**

## Beware of dog, but don't ignore dangers of cat, human bite wounds

*Accurate assessment, care prevent wound infections*

**B**ite wounds may be initially evaluated in the emergency department, but most wound specialists who have treated bites never forget the experience.

**Samantha Morgan**, RN, CRRN, CCM, ET, director of rehab services for Laurel Health Care Corp. in Westerville, OH, reports that the bites she has treated remain vivid in her memory. "Bite wounds are complicated by a number of factors," she says, noting that bite wounds carry a high risk of deep-tissue inoculation with bacteria, depending on the severity of the bite. Adults who've been bitten often present in the ED impaired by alcohol, which makes history taking, evaluation, and treatment difficult. Children who are bitten frequently are terrified, making assessment and treatment a challenge.

"With bite wounds," Morgan says, "the wound specialist may be asked to step in and assist in identifying and addressing the plan of care for the individual based on the degree of injury, the cognitive level of the patient, the management of the wound site, and the case management of the patient if significant tissue has been avulsed or there is likelihood of complications such as infection.

"As a wound ostomy and continence nurse, I am also quite interested in knowing what the emergency staff's protocols are. While I may not be involved initially, I may well be part of the follow-up," Morgan says. There's also a potential bite wound risk for home care nurses and affiliated health care professionals who deliver care in the homes of patients with pets.

Preventing bite wounds from becoming slow-healing or chronic requires quick, accurate intervention. Patients at highest risk of bite wound complications are those over 50, diabetics, asplenic, alcoholics, or those who have a lowered immune response due to chemotherapy, AIDS, corticosteroid therapy, prosthetic or diseased cardiac valve, or prosthetic or diseased joint.<sup>1</sup>

**Alexander Trott**, MD, professor of emergency medicine at the University of Cincinnati College of Medicine, says appropriate bite wound management depends on the type, location, and size of the bite. "My outpatient recommendation is that all bites from any source should be given a thorough cleaning immediately with soap and water, preferably using an antibacterial soap,"

## Antimicrobial Susceptibilities of Bacteria Frequently Isolated from Animal-Bite Wounds

Agent	Percentages of Isolates Susceptible					
	<i>S. aureus</i>	<i>E. corrodens</i>	Anaerobes	<i>P. multocida</i>	<i>C. canimorsus</i>	<i>S. intermedius</i>
Penicillin	10	99	50/95*	95	95	70
Dicloxacillin	99	5	50	30	NS	100
Amoxicillin/clavulanic acid	100	100	100	100	95	100
Cephalexin	100	20	40	30	NS	95
Cefuroxime	100	70	40	90	NS	NS
Cefoxitin	100	95	100	95	95	NS
Erythromycin	100	20	40	20	95	95
Tetracycline	95	85	60	90	95	NS
TMP-SMZ	100	95	0	95	V	NS
Quinolones	100	100	40	95	NS	NS
Clindamycin	95	0	100	0	95	95

NOTE: Data are compiled from various studies. TMP-SMZ, Trimethoprim-sulfamethoxazole; NS, not studied; V, variable.

\* Percentage of human-bite isolates/percentage of animal-bite isolates.

Source: Goldstein EJC. Bite wounds and infection. *Clin Infect Dis* 1992; 14:637.

Trott says. He adds that a dog bite where the skin is bruised but not broken must be watched carefully for signs of infection. Redness, heat, purulence, tenderness, extreme swelling, or lymphangitis mean the patient needs immediate medical treatment.

If the skin is broken or torn, the patient should see a doctor, no matter what animal delivered the bite. For larger wounds that break both the epidermis and dermis, Trott has developed standard wound management procedures. **(See Trott's bite wound management procedures, p. 39.)** Wound caregivers also must be sure the wound is sufficiently incised to permit effective irrigation and debridement.<sup>1</sup>

Antibiotic prevention of bite wound infection remains controversial. Early studies reported rates of infection as high as 45% after dog or cat bites; in subsequent studies, the incidence dropped to under 5%.<sup>3</sup> **(When antibiotics are called for, Trott recommends reviewing the table above to determine which one to use.)** "It's particularly helpful if you have a patient who's allergic to common antibiotics," he says, "because the table makes it easy to choose an alternate."

Trott emphasizes that for any cat or human bite, even if it doesn't break the skin, the patient requires immediate medical treatment because these bites can become badly infected. "Human mouths are sewers. If we have a human bite to the hand, including bites to a clenched fist, we always admit the patient for

intravenous antibiotics because we know how terrible the infection can be." Human bites arouse special concern because they can transmit organisms such as hepatitis B virus and syphilis.<sup>2</sup> "In spite of all the bacteria you hear about in dogs' mouths, they're actually cleaner than humans or cats," Trott adds.

Though 30 different genera of microorganisms have been cultured from a dog's mouth,<sup>1</sup> the number of bacterial species implicated in actual infections is much smaller. A recently published study<sup>3</sup> of 50 patients with dog bites and 57 patients with cat bites found a median of five bacterial isolates per culture, with 50% of dog bites and 75% of cat bites containing *Pasteurella* species. Cultures obtained at the time of injury are of little value because they cannot be used to predict whether infection will develop, or if it does, what the causative pathogens are.<sup>2</sup>

### Thin fangs can push germs deep into wounds

Cat bites and scratches that break the skin have a fairly high chance of becoming infected. "There's a bacteria in the cat's mouth called *Pasteurella multocida*. If it sets up in the skin and starts multiplying, within 24 hours that patient will have one of the nastiest-looking wound infections he or she, or maybe even the doctor, will ever have seen," Trott says. "Part of the reason is that cats have very thin fangs, and those fangs can be driven deep into the wound. Sometimes it doesn't look as bad because it's a very small little

wound. But in fact that fang might have been in very deep and pushed this germ down into the skin." Rodent bites are considered relatively low-risk. Tissue-crushing bites from herbivores such as horses and cows and bites from carnivores over joints are considered high-risk.

Most animal bite wounds in this country are inflicted by domestic animals, sometimes by the very canines and felines we consider to be our friends. Though estimates of the number of wounds from bites vary considerably, the lowest is in the millions of incidents, with the highest number being dog bites to children. The majority of bite wounds are to the extremities; however, in children, especially those under age 9, the face and head are most often bitten. Bite injuries are most likely to occur in children, with a peak incidence between the ages of 5 and 14.

**Leslie Sinclair**, DVM, director of veterinary issues for companion animals for the Humane Society of the United States (HSUS) in Washington, DC, says the biggest problem in assessing numbers of animal bite incidents is that there's no national reporting database. She adds that HSUS uses the estimate of 4.7 million dog bites annually in the United States derived from a 1996 study performed by the Centers for Disease Control and Prevention in Atlanta. "400,000 is probably not a bad estimate of cat bites," Sinclair says.

Whatever their incidence, appropriate care for bite wounds may include sutures. "There is a good deal of controversy about suturing bite wounds," Trott says. "If it's a large, disfiguring wound, then suturing has to be considered, especially in children. That should be the decision of a physician and possibly also of a consulting physician, like a plastic surgeon. It's a complicated decision based on the anatomic location and the type of bite and the potential for disfigurement."

The suturing issue is complex, agrees **Laura Pimentel**, MD, FAAEM, who chairs the department of emergency medicine at Mercy Medical Center in Baltimore. "It depends on the age and location of the wound as to whether we would put any stitches in it or not. We tend to shy away from that, but if it's in a place that appears to be well-vascularized, like the face, we'll go ahead and suture. On a hand, we would never do that."

Pimentel says it's critical in emergency room care to explore the wound very carefully to determine if there's any damage to neurovascular structures, tendons, or penetration into a joint space. "Depending upon the location and depth of the wound, we will sometimes X-ray to make sure there's not a tooth left in there," she says. "Probably any wound to the hand we would X-ray." She emphasizes that the most

## General Bite Wound Management Procedures

1. Cleanse the wound. Povidone-iodine solution is recommended for periphery cleansing. The standard solution is diluted 10:1 with saline and can serve as both the cleansing agent and irrigant.
2. After thoroughly scrubbing the wound periphery, irrigate copiously with high pressure using a 19-gauge needle, catheter or splash shield attached to a 20 ml or 35 ml syringe. Deliver diluted povidone-iodine solution directly into the wound.
3. Debride all devitalized tissue and wound edges. This is essential to reduce the possibility of wound infection.
4. Irrigate after debridement to provide greater exposure of the wound.
5. To facilitate effective irrigation of fang wounds, particularly slender cat teeth wounds, the entry site can be widened with a simple 1 to 1.5 cm incision across the puncture with a #15 knife blade. Retract the new wound with a hemostat or forceps to permit irrigation. Leave these incisions to close without sutures. If the edges are devitalized, trim back to viable skin.
6. Culture purulence or suspected infection. If antibiotics appear advisable, a beta-lactam with lactamase inhibitor or second-generation cephalosporin is recommended. Consult the table (see p. 38) for alternatives.
7. Ensure proper tetanus immunization.
8. Assess and treat for rabies exposure if necessary.

Source: Trott A. *Wounds and Lacerations: Emergency Care and Closure*. 2nd ed. St. Louis: Mosby; 1997.

important treatment factor is the local wound care, which includes appropriate irrigation and debridement of the bite site and a tetanus shot for any patient who hasn't had one in the previous five years.

Pimentel does not admit bite wound victims to the hospital unless there already is a serious infection, or the patient is diabetic or needs surgery. "The underlying health status of the patient is very important," she adds. "We worry more about a patient who is diabetic or immunocompromised for any reason." The antibiotic Pimentel uses most commonly is Augmentin, a combination of amoxicillin and clavulanate. She says Augmentin has very good broad-spectrum coverage for most of the bacteria of concern in a bite wound.

# New strategies offer help for burn wounds

*Caregivers may overlook resources*

Recent years have brought marvelous advances in burn wound care and an increase in the number of medical centers that specialize in treating burn wound patients. With this issue, *Wound Care* begins a series on burn wound care with an overview of the field. Subsequent articles will provide information on different kinds of burns and provide detailed information on the latest treatments.

Burn injuries result in more than 500,000 emergency room visits and about 50,000 hospital admissions every year in the United States. Of those patients who cannot be discharged following outpatient treatment at the initial medical facility, about 20,000 are admitted directly or by referral to hospitals with specialized burn units.<sup>1</sup>

Many innovative burn wound treatment techniques have been developed in the past few years. For instance, there are multiple surgeries now available in the reconstructive phase, such as z-plasty, a procedure performed to resolve contractures of the skin in which a surgeon makes a z-shaped incision. The incision releases skin from different directions and increases mobility. Another modality is tissue expanders, large balloons that are inserted under the skin. Saline solution is injected into the balloons. Once the tissue has expanded to the point where there's good coverage, the expanders come out, the scar is excised, the two sides of the wound are joined, and the patient no longer has a scar. There also are steroid injections for keloided areas to help smooth them out and pressure garments patients can wear to keep scarring to a minimum.

But not all health care professionals are well-versed in the basics of burn wound care, not to mention diagnosis and initial treatment.

Despite the abundance of advances in burn treatments, burn injuries are sometimes not even recognized as such by medical personnel, let alone given appropriate treatment. **Shannon Nelson**, RN, has worked as a burn care specialist for 14 years. She ran a burn center in Georgia for two years and is now with the Grossman Burn Center at Sherman Oaks (CA) Hospital. Nelson says electrical burns are a good example of poor recognition.

"A man came into our outpatient clinic because his hand tingled, and he just didn't feel right," Nelson explains. "He'd taken 220 volts into his hand, and had

Possible rabies exposure is another major risk incurred with bite wounds. Though most rabies risk in this country today does not come from pets, anyone bitten by a stray dog that can't be captured and held for observation should notify public health authorities. Tourism can significantly increase rabies exposure and risk. Trott observes that tourists can easily be exposed to rabid dogs along the Mexican border, and adds that "90% of stray dogs in Mexico carry rabies."

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"I welcome any new info the physicians or veterinarians can offer so that I can be a better resource for the health care consumers around me."

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When rabies exposure occurs, two types of treatment come into play. The first is with rabies immune globulin, which involves actually injecting the antibodies to rabies into the patient. The second is vaccination. According to Pimentel, a patient who's been bitten by a wild animal would get both. "Half the dose of immune globulin goes right into the area of the bite, the other half in the arm. Patients also get the first dose of the five-shot series of the vaccine."

Though some breed aficionados may tell you otherwise, the Humane Society of the United States' statistics show that certain breeds of dogs are responsible for more than their proportionate share of bite wounds. "Some of the dog species are bred for violence," Pimentel notes. "I know there have been more than a few deaths, particularly in children who've been mauled by these animals."

As Morgan points out, "Wound management is a 24-hour-per-day job, especially in my neighborhood. It's important for me to be able to advise the bitten or the parents of the bitten in the appropriate management of this type of injury. I welcome any new info the physicians and veterinarians can offer so that I can be a better resource for the health care consumers around me."

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the tiniest little speck on one of his fingers, just a little black dot. He'd gone to a hospital emergency room and been told, 'That's just soot, it'll go away.' By the time the damage from the electrical current was done, he lost his arm above the elbow because the burn had completely killed all the nerves and muscle. Over a three- to four-day period, you could see the wound begin to break down."

Nelson points out that electrical burns are just as dynamic as flame burns. "You can track the path of the current. You can see the tissue damage continue on up. A lot of times, with what looks like a little tiny burn, you have to surgically open the wound up down to the muscle to control swelling and protect circulation. With electrical burns, what appears minute can in fact be devastating.

"Had this patient come to us first, we would have admitted him and begun immediate fluid resuscitation to keep everything flushed out," she adds. "We admit any patient who takes current for 24 hours, because anytime you take current, you can affect the heart. Any electrical burn victim needs to be admitted to a telemetry unit and put on a cardiac monitor for 24 hours." Nelson points out that electrical injuries can incur damage to the kidneys, too, which can cause the patient to spill myoglobin.

Electrical burn victims need frequent nerve and circulation checks. The medical caregiver must identify where sensation starts and stops. "If there's any swelling at all, they'll lose some of the dull sensation," says Nelson. "If the patient can't feel a sharp sensation, it's a third-degree burn. A lot of times there's also internal swelling. The patient can develop compartment syndrome. If you've got a third-degree burn that goes around the wrist or hand, the skin no longer has any elasticity and doesn't stretch. As the body swells from the burn and from fluid hydration, the swelling has nowhere to go but internally, where it compresses nerves and circulation. If you start to compress, say, the radial nerve or the ulnar nerve, you can lose function and can actually lose part of the hand."

Burn wounds can be put into four categories:

- thermal wounds, which include flame burns, flash burns, contact burns like hot tar and molten plastics, and all burning substances that adhere to the skin;
- scald wounds, including hot water and immersions;
- electrical wounds from AC and DC current and lightning strikes;
- chemical wounds, which come most commonly from hydrofluoric and hydrochloric acid or wet cement.

Wet cement is a good example of a burn wound source that Nelson says often goes unrecognized. Construction workers and weekend warriors pouring

cement for a patio who get down on their hands and knees to smooth out wet cement can get up with second- and third-degree burns to those areas from a lye-based cement.

Here are the American Burn Association's and the American Burn Foundation's criteria for burn unit referral:

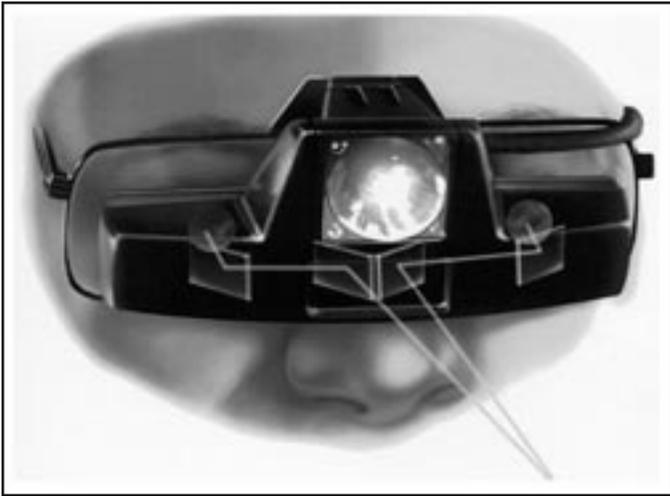
1. Partial-thickness burns greater than 10% of total body surface.
2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
3. Third-degree burns in any age group.
4. Electrical burns, including lightning injury.
5. Chemical burns.
6. Inhalation injury.
7. Burn injury in patients with pre-existing medical disorders that could complicate management, prolong recovery, or affect mortality.
8. Any patients with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk or morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient may be initially stabilized in a trauma center before being transferred to a burn unit. Physician judgment will be necessary in such situations and should occur in concert with the regional medical control plan and triage protocols.
9. Burned children in hospitals without qualified personnel or equipment for the care of children.
10. Burn injury in patients who require special social, emotional, or long-term rehabilitative intervention. ■

## Lighted spectacles illuminate wound care

*Welch-Allyn glasses give spectacular view*

Sometimes leafing through a catalog is no more than an idle occupation during a coffee break. However, the day **Ronald Scott, MD**, happened across a catalog ad for a type of spectacles used as binocular "headlights" by surgeons, dermatologists, and otolaryngologists, a metaphorical light bulb went on above his head.

"I looked at this ad and said, 'Hey, that looks great! Why couldn't we use these in wound care?'" Scott says. He immediately ordered a pair and gave them a try. Scott, who is medical director of the Wound Care Clinic of North Texas at Presbyterian Hospital in



Dallas, now uses a Welch-Allyn LumiView Binocular Headlight consistently when debriding wounds.

"It's been just excellent," Scott says, "especially on making rounds in the hospital. A couple of hospitals I go to have notoriously poor lighting in the rooms. If the room is dark and I'm inspecting a wound, the spectacle headlight glasses are great for lighting it up, even without using the magnification feature. It's very easy to take them on rounds. You just put the battery pack in your pocket, put the glasses around your neck, and when you get in the room, put your glasses on, put your gloves on, and turn on the light, you get a great view."

Scott adds, "We're constantly fighting a battle to turn the patient and see the wounds. This is great because it gives off bright white halogen light. We bought another pair for the clinic and started using them when we inspect cavity wounds. In the past, we'd have to use a hand-held light at various angles. This makes it much, much easier to do the inspection of the wound."

**Byron J. Bailey, MD**, professor of otolaryngology at the University of Texas Medical Branch in Galveston, also is a fan of the glasses.

"I use a LumiView headlight frequently for minor surgical procedures because the light is so good, it doesn't have to be adjusted, it's bright enough, and it's lightweight. It's comfortable to wear. Some of the more elaborate devices are a little heavy and bulky. It's a very versatile piece of equipment."

Suggested retail pricing for the product is between \$595 and \$715. *[Editor's note: For more information on LumiView glasses, contact Welch-Allyn at (800) 535-6663.]*

Scott says the lighted spectacles are much less expensive than some of the other lights and less cumbersome than the headlights he's used in the operating room. He cautions that correct adjustment is important when using the magnifying aspect of the glasses.

The LumiView Binocular Headlight is designed to be adjusted specifically for the wearer's interpupillary distance (IPD) and other facial anatomy. Below each eye-piece, there is an adjustment slide and screened reference scale for adjusting the IPD. To obtain correct adjustment:

- Put on the headlight and look at a single point drawn on a piece of paper held 16 to 20 inches away. Then close one eye and move the IPD adjustment until the point is at the center of your optical field.
- Repeat the procedure with the other eye without moving your head.
- Stare at the point with both eyes open, allowing the image to fuse into full binocular vision. It may take a few seconds and some practice for the image to merge into a single view.

- To check alignment, look at your own eyes in the mirror through the headlight with the lamp turned off.

Each eye should be centered in the square optical area just below the lamp reflector. **(See diagram, above left.)**

- If the light is beneath the point, move the optics downward by loosening the adjustment screw and sliding the optics down in the adjustment track. Retighten the screw and check the adjustment as above.

- If the light is above the point, move the optics upward. If the LumiView spectacles cannot be adjusted to center the light around the point 16 to 20 inches away, your optician may need to adjust the nose pads or temple bars. An optician also can insert prescription lenses into the glasses. ■

## PDGF product receives Canadian approval

*Clinical trials continue for additional uses*

**A**s reported in the March 1998 issue of *Wound Care*, the genetically engineered platelet-derived growth factor (PDGF) becaplermin gel 0.01%, marketed as Regranex, received approval from the Food and Drug Administration in late 1997. The indication approved was treatment of lower-extremity neuropathic diabetic ulcers that extend into the subcutaneous tissue or beyond and have an adequate blood supply.

In February, Regranex also received approval from Health Canada's Therapeutic Products Programme, again for the treatment of diabetic foot ulcers, which are the leading cause of amputation among Canadians

with diabetes. Diabetic foot ulcers precede about 85% of all amputations in patients with diabetes, and account for more hospital days than all other diabetic complications combined. In Canada, the estimated direct and indirect costs of an amputation are between \$35,000 and \$50,000. Additionally, \$5 billion to \$6 billion is spent annually in Canada for the treatment of diabetes and its complications.

Diabetics often are insufficiently aware of foot ulcers because nerve damage and visual and circulatory problems make feeling or seeing ulcer development difficult. Several population-based studies have reported the prevalence of diabetic foot ulcers and help to illustrate the worldwide extent of the problem. Investigators in Stockholm have found the prevalence of diabetic foot ulcers to be 4.4% in Sweden.<sup>3</sup> British studies have shown the prevalence of diabetic foot ulcers to range from 5.3% to 7.4%.<sup>4</sup> Moreover, a study conducted in Sweden that investigated the long-term prognosis for diabetic patients with foot ulcers revealed high recurrence rates for ulcers (up to 70%) and high rates of amputations (12% to 48%) over five years of follow-up.<sup>5</sup> Amputation is associated with a higher risk of subsequent amputation and a decreased survival rate to approximately 50% for the first three years after limb loss.<sup>4,5,6</sup>

PDGF plays an important role in initiating and regulating the wound healing process. Activated platelets are the first cell types to invade the wound site and start the healing process by releasing several growth factors, including PDGF, which plays an important role in all phases of the wound healing process. PDGF stimulates the proliferation of cells involved in the inflammatory response and the proliferation and migration of fibroblasts and smooth muscle cells. All of the principal cell types that migrate into the wound site either synthesize and release PDGF or are responsive to it. PDGF also stimulates both the synthesis of extracellular matrix components and the lysis of collagen by collagenases. Because human skin fibroblasts are more responsive to the B chain of PDGF, the BB homodimer of PDGF is used exclusively in the formulation of becaplermin gel.<sup>2</sup>

The effects of becaplermin gel have been assessed in four major clinical trials of nearly 1,000 patients with full-thickness lower-extremity diabetic ulcers.<sup>7,9</sup> In these trials, the diabetic ulcers were of at least eight weeks duration and had an adequate blood supply. Median ulcer size at baseline ranged from 1.4 cm<sup>2</sup> to 3.5 cm<sup>2</sup>. All patients received a program of good wound care, consisting of initial debridement, a non-weight-bearing regimen, systemic treatment for infection if present, moist saline dressings, and additional

debridement as necessary. Becaplermin gel or placebo gel was applied once daily for 20 weeks or until complete healing was achieved. Results of these trials showed that becaplermin gel increases the incidence of healing and decreases the time to healing in patients with lower-extremity neuropathic diabetic ulcers<sup>8,9</sup> when used in conjunction with good ulcer care practices, including pressure relief, infection control, and initial debridement of the wound.

Results of the phase III trial demonstrated that during up to 20 weeks of treatment, 50% of wounds were completely healed in patients receiving becaplermin gel compared with 35% of wounds in patients receiving placebo gel.<sup>7,9</sup> Furthermore, daily treatment with becaplermin gel decreased healing time by 32%, or approximately six weeks, compared with placebo gel. Becaplermin gel was well-tolerated in all clinical trials.

The manufacturer estimates that the average amount of Regranex needed for foot ulcer therapy is one and a half to two tubes of the product, which is applied directly to the ulcer once a day. Wholesale price for the product in the United States is \$350 per tube.

[Editor's note: For more information, call Regranex at (888) 734-7263.]

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# Product POINTERS

## What to do with too much of a good thing

By **Liza Ovington, PhD, CWS**  
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**T**he wound healing process has been described as consisting of three overlapping phases: inflammation, proliferation, and maturation. Each phase is characterized by specific cells and biochemical processes. In the inflammatory phase, platelets act to achieve hemostasis while white blood cells fight infection. In the proliferative phase, the wound defect fills with granulation tissue and covers over with epithelial tissue. In the maturation phase, the wound slowly regains tensile strength through collagen remodeling.

Wound care professionals are familiar with the appearance of healthy granulation tissue, which should be beefy red and granular or “cobblestone” in appearance. Both the color and texture of granulation tissue are due to newly formed capillary loops. Granulation tissue also contains large numbers of fibroblasts, which are actively synthesizing collagen and other extracellular matrix molecules such as glycosaminoglycans and hyaluronic acid. Granulation tissue in the wound is considered a positive sign and a necessary component of wound healing.

However, there are instances when too much granulation occurs. Rather than simply filling up the wound defect, the tissue exceeds the edges of the wound or mounds up above the level of the surrounding intact skin. This condition is known as hypergranulation. Other terms for hypergranulation include exuberant granulation and “proud flesh.” Certain individuals may be predisposed to hyperplasia and tend to develop hypergranulation or hypertrophic scars. There also have been suggestions that fully occlusive dressings such as some hydrocolloid dressings may promote a hypergranular response in certain cases.<sup>1,2</sup> Low wound oxygen tension created by the occlusive dressing is thought to accelerate the deposition of granulation tissue by fibroblasts.<sup>3</sup>

An excess of granulation tissue in a wound can actually delay healing because epithelial cells cannot

“climb” over it and are therefore arrested at the wound edge. So, while some granulation tissue is a good thing, it is possible to have too much of a good thing. When hypergranulation is encountered, it must be removed or flattened out so the epithelial tissue can subsequently resurface the wound and restore barrier function.

There are very little data in the literature concerning methods for addressing hypergranulation in human wounds. However, hypergranulation or proud flesh is rather common in canine and equine wounds, and there are a number of references concerning its management in veterinary journals.<sup>4,5</sup> Veterinary management methods include chemical cautery, cryogenic surgery, surgical resection, topical steroids, or leaving the wound open to air. In the human population, hypergranulation may be dealt with in a number of similar ways.

Chemical cautery with a silver nitrate pencil is perhaps the most common method of removing excess granulation tissue. When silver nitrate contacts the superficial exposed tissues, it causes them to necrose almost immediately. The necrosed layer may then be wiped off gently. Contact of silver nitrate with intact skin will cause the skin to darken but not necrose. Use of silver nitrate should be undertaken with caution and an appropriate protocol.

Because granulation tissue is by nature very delicate, it also has been suggested that the excess can be removed by wiping a gauze sponge around the wound edges with moderate pressure.<sup>3</sup>

### Foam dressings can reduce hypergranulation

A less traumatic approach to managing hypergranulation tissue caused or exacerbated by occlusion is switching from the occlusive dressing to an absorbent, semioclusive dressing such as a polyurethane foam. This approach was verified in a small clinical trial of 10 patients, which documented a significant decrease in the height of hypergranulation tissue at a two-week time point after institution of the foam dressing.<sup>6</sup> Additional methods for reducing excess granulation include the use of topical corticosteroid creams and surgical removal.

An important caveat to the management of hypergranulation bears mentioning. It may be wise to rule out malignancy in certain chronic wounds with excessive granulation. Clinicians at the University of Miami dermatology department have documented multiple cases of hypergranulation in venous ulcers that were revealed upon biopsy to be basal cell carcinoma.<sup>7</sup> It was noted that in all of the five cases described, the granulation tissue exceeded the margins of the ulcer and appeared to be healthy.

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## NEWS BRIEFS

### 'Back to a Future' mixes products, garments, training

**B**eiersdorf-Jobst has unveiled a new program of products and services targeted to both caregivers and patients. The program, called "Back to a Future," combines wound and skin care products, pressure-therapy garments, professional training, and educational materials for the management of burn wounds.

The product catalog features a full line of derma and wound care products, including Jobskin pressure garments for prevention and management of the hypertrophic scars that frequently result from severe burns. The program offers young Jobskin patients the opportunity to join the Jobskin Kids Club, designed to motivate them to participate in their ongoing burn therapy.

Materials available through the club are designed to help patients, their families, and therapists learn more about the benefits of pressure therapy while encouraging the young patients to wear their pressure garments.

The company also provides inservice training for medical professionals, through which physicians, therapists, and others involved in burn treatment learn how to properly fit their patients with Jobskin pressure garments. Additional caregiver and patient education materials are under development by Beiersdorf-Jobst and will be made available through the "Back to a Future" program during 1999.

In addition to its burn and scar management products, Beiersdorf-Jobst manufactures and markets the Jobst line of vascular garments and devices. For more information on the "Back to a Future" program or other products and services available from Beiersdorf-Jobst, call (800) 537-1063. ▼

### Board certification now offered for wound care

**T**he American Academy of Wound Management (AAWM) in North Bay Village, FL, now offers board certification for nurses, physicians, physical therapists, and other health care professionals involved in wound care. The AAWM, which is a member of the National Organization for Competency Assurance, is the first cross-disciplinary organization offering certification in wound care.

Applicants must complete a precertification application, which is reviewed by a credentials committee member to determine eligibility for certification. Qualified candidates then must complete the certification application and provide additional documentation of their professional training and experience in wound management. Following approval of this application, certification up to July 1 takes place via submission of a portfolio documenting professional wound care experience.

Beginning Oct. 1, certification will be available only by passing an examination. The certification process takes place only four times a year. Certification is valid for 10 years, after which a recertification exam is required. Until then, it is renewable yearly based on the applicant's documentation of six hours of continuing education units in wound care. The AAWM will hold a field test for the board certification examination this month.

Certification benefits include a certificate registered by the AAWM, plus designation as a certified wound specialist (CWS), a listing in and copy of the National Registry of Board Certified Wound Specialists, and a subscription to the AAWM's quarterly publication. The CWS credential is used whenever the name of the person who earned it is used in a professional context.

The AAWM also offers membership categories for those involved in wound care who do not meet eligibility requirements for certification, including those who have an associate's degree and a year's experience in wound care, health professionals involved with wound care outside the United States, and students and residents in health-related disciplines with a special interest in wound care.

Fees are: pre-application, \$75 (applied toward certification fee); certification, \$400; certification renewal, \$150; U.S. membership renewal, \$75; international membership renewal, \$95. For more information, contact the American Academy of Wound Management, 1720 Kennedy Causeway, Suite 109, North Bay Village, FL 33141. Telephone: (305) 866-9592. Fax: (305) 868-0905. E-mail: woundnet@aol.com. The AAWM Web site, <http://members.aol.com/woundnet>, offers information on the wound care specialization trend and a resource section with more than 100 links to wound care-related sites. ▼

## Curative offers new learning system

Curative Courseware is a system that describes a clinical pathway for wound healing through a series of on-line learning modules. Available to health care professionals affiliated with Curative Health Services Network of Wound Care Centers, the modules focus on specific areas of chronic wound care by providing up-to-date information, graphics, and videos that are organized around the clinical pathway. These modules contain the research and findings of the scientific community as well as detailed descriptions of clinical applications.

According to **Christy Pines**, Curative's manager of interactive communications, "We used to hold medical workshops to bring together the doctors and nurses working in a Curative Wound Care Center so that they could understand the clinical pathways for wound healing, the underlying disease etiologies that might prevent wound healing, all the different things we felt they

needed to know in order to have successful outcomes. This was a very expensive process, and people didn't really like leaving their homes to sit in a classroom for a seminar. It wasn't a very efficient way of operating. We took all of that content put it into an on-line system. What we have now is a 22-module electronic course that covers all the aspects of wound healing."

Modules are available in a broad range of areas related to the healing of chronic wounds, including: patient assessment, wound assessment, obstacles to wound healing, clinical pathways for wound healing, infection, excision and debridement, growth factor therapy, grafts and flaps, nutrition, hyperbaric oxygen, the diabetic foot, peripheral vascular disease, chronic venous disease, pressure ulcers, new products and technologies, and difficult cases.

"In addition," Pines says, "we had a huge resource of articles, electronic slide presentations, research studies, etc. So we developed an electronic filing cabinet to which anyone in our network can go and look up these materials." Pines says the courseware also contains a "bulletin board" for affiliates to post questions and comments that everybody else in the network can see and respond to. "It's a wonderful way for someone who's new to our system to get some help from someone who's been around for awhile."

The modules also provide practice sessions and a self-administered mechanism for testing a participant's grasp of the content. Courseware is approved as continuing medical education. For more information, contact Curative Health Services, 150 Motor Parkway, Hauppauge, NY 11788. Telephone: (516) 689-7000. ▼

**Clarification:** In the article on odor-absorbing dressings in the February issue of *Wound Care*, values for the volume of test solution applied to dressings to produce 10 ppm of diethylamine in the air were incomplete. Please refer to the table below for the complete chart.

### Volume of test solution applied to dressings to produce 10ppm diethylamine in test chamber

Product	Test volume (ml)	
	Mean	(sd)
Actisorb Plus	9.5	(1.36)
Carboflex	17.1	(1.95)
Carbonet	13.5	(2.95)
Lyfoam C	12.7	(3.48)
Release	3.9	(0.53)

## Flagship offers new wound care management program

Flagship Healthcare in Miami Lakes, FL, has launched an outpatient wound care management program in which enrolled patients are seen in their homes an average of once a week by a member of a wound care team of case managers, wound care nurses, pharmacists, physical and occupational therapists, and nutritionists.

"Many patients with hard-to-heal wounds seek treatment only when their condition becomes unbearable," says **Stacey Bateman**, company director of program development. "They may go to an emergency room or wound clinic when they have no other choice, but they might not return for months or even years to continue treatment or seek follow-up assessment. We're placing a strong emphasis on regular preventive treatment for chronic wound patients." Flagship's program focuses on comprehensive clinical services and patient education to ensure patients receive appropriate care regularly as well as the knowledge required to manage the condition. For more information, call Flagship at (305) 820-0950. ▼

## New product sanitizes hands without alcohol

Woodward Laboratories, a Los Alamitos, CA-based manufacturer of antimicrobial products, is introducing HandClens, an alcohol-free instant hand sanitizer for use between hand washes.

In a written statement, **Kenneth Gerenraich**, DPM, president of Woodward, said the company "developed this germ-killing system to provide a superior method of preventing the spread of infections while protecting the skin of medical professionals who must frequently wash their hands."

"HandClens is the only alcohol-free hand sanitizer on the market," says **Dan Pierson**, national sales manager for Woodward. A study published in the August 1998 issue of *Association of Operating Room Nurses Journal* compared alcohol-based hand sanitizers to the alcohol-free HandClens, and found that alcohol-based hand sanitizers become less effective with repeated use and irritate the skin.

The company says HandClens kills 99.9% of most disease-causing germs within 15 seconds, including vancomycin-resistant *Enterococcus faecium* and methicillin-resistant *Staphylococcus aureus*. For more information, call Woodward Laboratories at (800) 780-6999. ▼

## Software offers technical support, input, outcomes

Johnson & Johnson Medical, based in Arlington, TX, is preparing to launch WOUNDPRO, a computer software program the company says will assist clinicians in making choices for wound care and management.

According to **Steve Noetzel**, marketing director for the company, the program contains wound care

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formularies and wound-specific protocols, tracks patient information, and offers wound caregivers all the information they need to select the correct dressing option, order a product, and track clinical and cost outcomes.

"It's a point-and-click decision support tool," says Noetzel, "a Windows platform that easily integrates with other software applications. Clinicians enter information on a patient, how the patient presents and how the wound presents. The program then presents them with choices on how they can manage a wound. The program will track the cost of their choices by labor cost and supply cost. It can generate orders for the physician to sign and has different kinds of reports on outcomes tracking. It's got a tissue type report, cost report for the entire patient history, total size of the wound report, treatment history report, and does some patient wound demographic reports and ICD-9 reporting."

### Company generates reports, provides benchmarking

The company also can generate reports for clinicians on a quarterly basis, Noetzel adds. "Of course, they can generate reports right off their own computer," Noetzel says, "but they may have 87 people using the same software. Users can dial into our data center, upload their information, and the data center can generate reports in aggregate for the entire group." Reports then can be provided to wound care clinicians in paper or electronic form.

The data center also will provide benchmarking reports against a national database. A user can send in patients' information and track their outcomes vs. the national database. If the clinician's outcomes are worse than the nationals, the company can then suggest other protocols to use.

There will be an initial charge for the software plus a monthly subscription fee. Purchasers will receive program updates and full technical support. For further information and pricing, contact Johnson & Johnson Medical, 2500 E. Arbrook Blvd., Arlington, TX 76014. Telephone: (800) 433-5170. ■

## Coming in Future Issues

- Nitric oxide: Miraculous molecule for wound healing
- Light therapy: Does it really speed wound healing?
- Evidence-based medicine: Centers of excellence in the UK
- Magnets: Help or hoax for wounds?

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## Wound Calendar

• The 1999 Symposium on Advanced Wound Care and Medical Research Forum will be held April 24-27 in Anaheim, CA. For information, call (800) 237-7285, ext. 200, or (610) 688-8220, ext. 200.

• The 1999 Centers for Disease Control and Prevention Diabetes Translation Conference will be held April 26-29 in Albuquerque, NM. For information, call (770) 488-5505.

If you have a conference, seminar, or other wound care-related event you would like listed in the calendar, please send the information to: *Wound Care*, P. O. Box 740056, Atlanta, GA 30374. ■

## CE objectives

After reading each issue of *Wound Care*, the health care provider will be able to:

- identify management, clinical, education, and financial issues relevant to wound care;
- describe how those issues affect wound care providers and patients;
- describe practical ways to solve problems commonly encountered by care providers in their daily activities. ■