

WOUND CARE: A MULTISPECIALTY APPROACH

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When clinicians from different, complementary disciplines
come together with the common goal of healing chronic
wounds, everyone benefits.

An estimated 3.7 million people in the United States are at risk for a chronic wound.¹ Chronic wounds, which are defined as wounds that do not heal in an orderly and timely fashion, produce significant morbidity. Predisposing or underlying medical conditions—such as diabetes mellitus, venous stasis disease, spinal cord injury, peripheral vascular disease, collagen vascular diseases, burns, and other trauma—complicate the course of treatment. Lost work time and other costs associated with treating chronic wounds are significant, especially if wounds progress to infection with gangrene and require amputation.²⁻⁵

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At the Bay Pines VA Medical Center in Bay Pines, FL, concern over the diagnosis and treatment of patients with chronic wounds prompted us to establish a wound care clinic with a multidisciplinary wound care team in 1993. Up until that time, there was no organized, integrated wound care service or clinic: Wound care was provided in various specialty areas of the medical center, including general surgery, plastic surgery, vascular surgery, orthopedics, podiatry, internal medicine, dermatology, and general medicine. With the establishment of the wound care clinic, however, wound care has become a multidisciplinary service provided in one setting, using standard treatments and research protocols. Since the initiation of the clinic, healing rates have improved and the incidence of lower extremity amputation has been reduced.

In this article, we'll provide an overview of the multidisciplinary approach to wound care our clinic offers. We'll discuss why the clinic has been beneficial to our patients

and the institution and what resources are required to develop such a program.

THE MULTISPECIALTY ADVANTAGE

Since the anatomic site and etiology of a wound influence healing, a variety of practitioners from different specialties and with diverse perspectives and expertise can contribute meaningfully to wound care. It's been suggested that the ideal multispecialty wound care team would include surgeons, internists, geriatricians, podiatrists, physician assistants, pharmacists, orthotists, research and clinic nurses, nutritionists, home health care nurses, and social workers.⁶⁻⁹ Brought together in one clinic, such a team can provide definitive evaluation, treatment, and complete care for patients with chronic wounds, eliminating the need for numerous referrals to multiple practitioners and the subsequent delays inherent in referral. Many studies, in fact, have shown that wound care is more efficient when performed in a multidisciplinary

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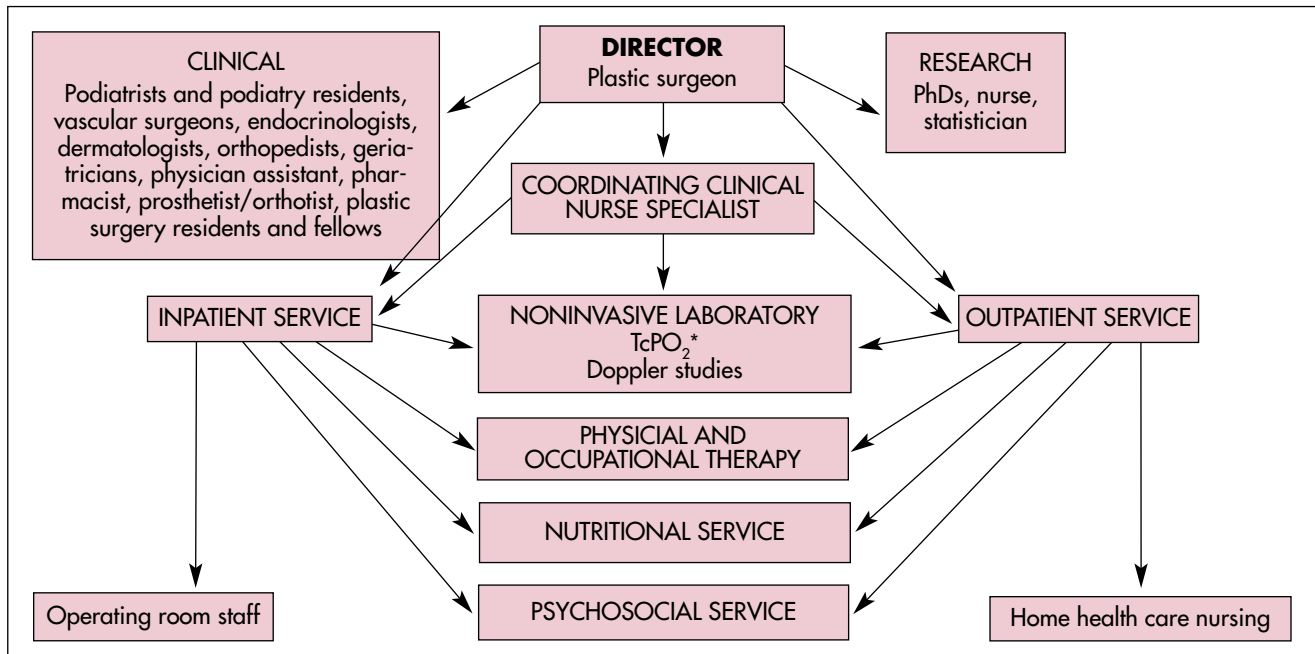


Figure 1. The wound care team at the Bay Pines VA Medical Center, Bay Pines, FL. *TcPO₂ = transcutaneous oxygen tension measurements.

setting.⁶⁻⁹ Both morbidity and costs of treatment are reduced in this type of setting.^{4,5,10-13}

VITAL CLINIC COMPONENTS

The wound care clinic at the Bay Pines VA Medical Center is directed by a plastic surgeon (Figure 1). Each week, plastic surgery residents and fellows, podiatrists, podiatry residents, a physician assistant, a pharmacist, an orthotist, a research nurse, clinic nurses, social workers, dietitians, and appointment clerks participate in a scheduled clinic.

Vascular surgeons, endocrinologists, geriatricians, and dermatologists are available for immediate consultation. The team extends beyond the boundaries of the clinic walls to include the operative team, inpatient nursing staff, home health care nurses, and nurse coordinator, who helps arrange home and hospital care.

A DIRECTED PHYSICAL EXAM

After a thorough patient history is taken, the wounds and their causes are treated by surgeons, podiatrists, and a physician assistant. The examining clinician evaluates the wound, considering any vascular, medical, or pressure-related factors, and renders treatment as appropriate to optimize healing (Figures 2 and 3).

The physical examination includes an assessment of pulses, neuropathy, and edema. It takes into account the possibility of soft and hard tissue infection as well as the viability of tissue. The examination may uncover exacerbating environmental factors (such as footwear, positioning, or continuous trauma) or a problem with current treatments. When necessary, we employ advanced wound diagnostics, using transcutaneous oxygen tension measurements and laser Doppler perfusion determina-

tion. If vascular reconstruction is contemplated, an arteriogram is obtained. Plain film X-rays are taken if underlying bony structures are involved.

The examining clinician obtains quantitative wound cultures in order to assess bacterial balance and determine whether infection is present. A wound is considered infected if it contains more than 10⁵ bacteria per gram of tissue or any evidence of beta-hemolytic streptococcus. Bone biopsies are performed if osteomyelitis is suspected.

VARIED TREATMENT

Treatment may involve the unroofing of sinuses and tracts and debridement of any callus or necrotic tissue. If there is significant, exacerbating arterial disease and it's correctable, vascular reconstruction is undertaken. Diabetic foot wounds in bacterial balance are treated with topical growth factor

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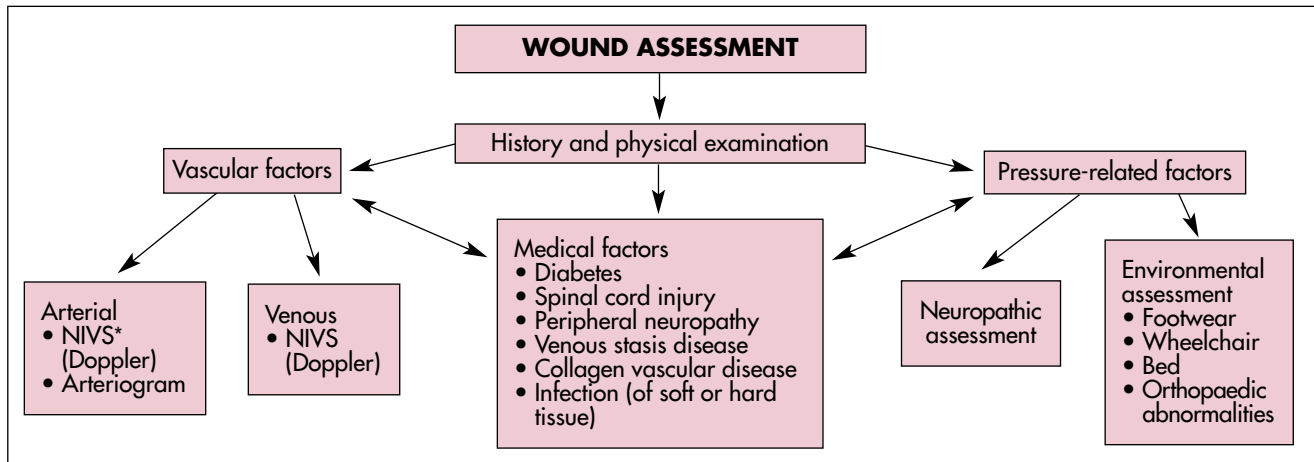


Figure 2. Components of wound assessment at the Bay Pines VA Medical Center's wound care clinic, Bay Pines, FL. *NIVS = noninvasive vascular studies.

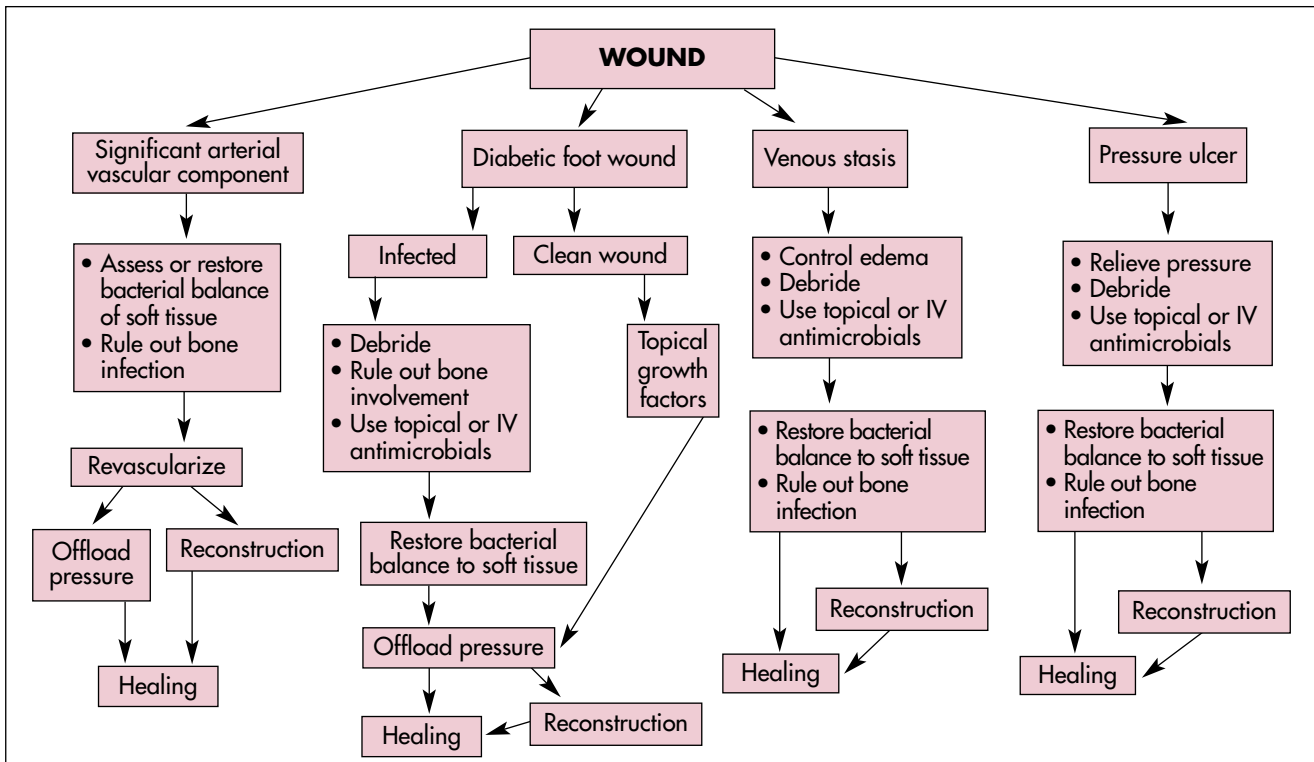


Figure 3. Algorithm for wound treatment at the Bay Pines VA Medical Center's wound care clinic, Bay Pines, FL.

(becaplermin gel) when appropriate. Orthotists evaluate footwear and make adjustments to inserts or order specialized footwear to relieve, or offload, pressure from the wound. Venous stasis ulcers require

compressive garments and wraps—with elevation when possible—to control edema. Pressure ulcers of the trunk require such pressure-relieving measures as frequent position changes, padding, or a special

mattress. Any wound may require topical therapy in the form of antimicrobial agents, saline, or enzymatic debriding agents. Depending on the wound's size, condition, ability to heal, and rate of healing,

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wound reconstruction through skin grafting, local flaps, or free tissue transfer may be considered.

The research nurse evaluates patients and their wounds for inclusion into approved institutional research protocols. A clinic nurse applies dressings and educates patients about their wounds and wound care protocols. The dietitian addresses any special nutritional needs. The social workers address quality-of-life issues and eligibility for home health care. Appointment clerks interact with patients to arrange follow-up appointments, consultations, and tests.

Gathering the multispecialty team together at the same time in a single locale allows us to communicate immediately and directly about the patient's wound and related needs. Our multilayered treatment approach provides one-stop care for the wound patient.

HOW EFFECTIVE IS THE PROGRAM?

To evaluate the efficacy of our team approach to wound healing, we conducted a retrospective medical chart review of patients with diabetic foot wounds. We compared outcome data for 118 such patients, who were treated at the medical center before the multidisciplinary clinic was established, with that of 116 patients, who had similar characteristics and were treated by the multidisciplinary team 18 months after wound care clinic implementation.¹⁰

Because amputation is such a serious, frequent, and costly complication of diabetes, we focused our study on amputation rate.^{13,14} Failure rates for amputations in diabetic patients are as high as 28%.¹⁵ Opposite limb complications develop in 50% to 60% of diabetic am-

putees within two to five years of amputation.¹⁶ We found that our clinic approach dramatically reduced the amputation rate among diabetic patients and the severity of necessary amputations.

Of the patients whose wounds were treated prior to the establishment of the clinic, 66% (78) required amputation—compared to 39% (45) of patients treated in the multispecialty clinic. Not only did the clinic reduce the overall number of amputations performed, it greatly improved amputation level. In the preclinic group, 18% (14) of the amputations occurred above knee level, 32% (25) below knee level, and 50% (39) at toe or metatarsal level. By comparison, in the clinic group, there were no amputations above knee level. Only 18% (eight) were below knee level, and the vast majority—82% (37)—were at the toe or metatarsal level.¹⁰

Other chronic wounds, though perhaps less frequent causes of amputation, also carry high social, emotional, and economic costs. For example, venous stasis ulcer disease is associated with lost workdays, diminution of lifestyle, and high treatment costs. Treatments can be long and tedious and are often unsuccessful. Surgery may be of value to some patients, but not all.¹⁷ We have found that with all chronic wounds, early diagnosis, treatment, and rehabilitation in a multidisciplinary setting are key to success.

OTHER PROGRAM BENEFITS

Our clinic has served as an investigating site for numerous prospective, randomized, blinded trials of new wound healing agents, including topical cytokines and growth factors, many of which have been studied in our laboratory and ap-

pear to hold great promise.¹⁸⁻²⁰ Our basic science research laboratory also has contributed to the understanding of chronic wounds and wound treatments.²¹⁻²³

Bringing together clinicians from different, complementary disciplines with the common goal of healing chronic wounds has helped our medical center improve outcomes, reduce costs, and eliminate redundant evaluations.⁴⁻¹³ Patients receive prompt, comprehensive treatment with fewer appointments than under the former system, and they enjoy improved outcomes and better quality of life.⁶⁻¹⁰ This is possible because all involved practitioners can be gathered together at the same time and place to create and implement an overall plan of care. This model of wound care delivery can be adapted to any health care institution regardless of size or affiliation.

OVERCOMING BARRIERS

The concept of a multidisciplinary wound care clinic isn't new.^{6-10,12,13} Developing such a clinic, however, requires interested, dedicated, and available staff.^{6,24,25} The primary barrier to development is gathering the necessary personnel in a single setting at a specific time.

Establishing such a multidisciplinary clinic is well worth the effort. Not only does proper wound care have a significant positive impact on patient health, well-being, and quality of life, but it allows health care providers and facilities to realize time, work, and cost savings. Such a program should be considered at all health care facilities that provide chronic wound care. ●

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