

Wound Care Educational Goals & Objectives

Chronic wound care is an issue of increasing concern for physicians in many specialties, including primary care, general surgery, and subspecialties of both disciplines. The Wound Care and Hyperbarics rotation offers a short course in chronic wound care. The goal of the rotation is to provide the resident with an opportunity to evaluate and manage wounds and wound-related complications commonly seen in the course of general medical and surgical practices. Focus will be on understanding the pathophysiology of wound healing and covering such topics as risk factors, wound debridement, appropriate indications for hyperbaric therapy, wound dressings, and infection prevention and treatment.

Faculty will facilitate learning in the 6 core competencies as follows:

Patient Care and Procedural Skills

- I. All residents must be able to provide compassionate, culturally-sensitive, and appropriate care for patients to prevent and treat chronic wounds.
 - PGY2s should seek directed and appropriate specialty consultation when necessary to further patient care.
 - PGY3s should supervise and ensure seamless transitions of care between primary and consulting teams and between inpatient and outpatient care.
- II. Residents will demonstrate the ability to take a pertinent history and perform a focused physical exam. PGY1s should be able to differentiate between stable and unstable patients and elicit the following historical details:
 - risk factors that predispose patients to develop ulcers or have poor wound healing, including age, antecedent surgical procedure, diabetes, history of DVT, immobility, infection, neuropathy, obesity, skin conditions, tobacco use, venous valvular incompetence, and vascular disease
 - systemic signs and symptoms, such as fever or poor glucose control

PGY2s should be able to recognize the contribution of comorbidities and medications to a patient's immune status and risk for infection and poor wound healing.

PGY3s should be able to independently obtain the above details for patients with a complex history of chronic non-healing wounds and multiple comorbid conditions.

- III. Residents should be able to characterize the following physical findings:
 - PGY1s: acute wounds, their mechanism, and location; body mass index, dilated superficial veins, diminished peripheral pulses, hair loss on extremities, neuropathy, skin changes, including changes of chronic venous stasis; temperature of extremities, thickened toenails, xerosis
 - PGY2s: characterization of wounds, staging of pressure ulcers, recognizing ulcers with concomitant infection and/or osteomyelitis
- IV. Residents will understand the indications, contraindications, complications, limitations, and interpretation of following procedures, and become competent in the their safe and effective use:
 - Incision and drainage of superficial abscesses
 - Sharp debridement of wounds

- Skin biopsy

Medical Knowledge

- I. PGY1s will develop an understanding of the basic pathophysiology and approach to evaluation and treatment of the following conditions seen in a wound care practice:
 - Arterial ulcers
 - Burns
 - Cellulitis
 - Chronic osteomyelitis
 - Diabetic foot ulcers
 - Inflammatory ulcers
 - Lymphedema
 - Necrotizing soft tissue infections
 - Neuropathic ulcers
 - Osteoradionecrosis
 - Post-operative nonhealing wound
 - Pressure ulcers
 - Soft tissue radionecrosis
 - Venous stasis ulcers

PGY2s will also develop an understanding of

- pathophysiology and sequence of events for normal wound healing and alterations of this process in chronic wounds
- pressure ulcer staging

PGY3s will develop a more in depth understanding of

- disease pathophysiology
- detailed topical treatment plan
- possible causes for lack of response to therapy
- role of specialized wound care therapies, such as negative pressure wound therapy and hyperbaric oxygen therapy

- II. All residents will become familiar the following issues related to wound care and prevention:
 - appropriate use of antibiotics
 - barriers to healing
 - foot care
 - glucose control
 - infection control procedures
 - nutrition and dietary supplements
 - principles of moist wound healing
 - types of wound dressings – indications, advantages, and disadvantages
 - surfaces and skin protection
- III. PGY1s will be able to understand the indications for ordering and the interpretation of the following laboratory values and procedures:

- Appropriate use of wound cultures
- CBCD
- Serum chemistries
- CRP and sedimentation rate
- Imaging with radiographs, CT, MRI and ultrasound

PGY2s will learn appropriate use of laboratory and diagnostic studies within the context of multiple comorbidities and the patient's changing condition.

PGY3s will independently, appropriately order studies and be able to interpret results within the context of pretest probability of disease and patient values.

Practice-Based Learning and Improvement

- I. All residents should be able to access current national guidelines (e.g. 2012 Infectious Diseases Society of America Clinical Practice Guidelines for the Diagnosis and Treatment of Diabetic Foot Infections <https://academic.oup.com/cid/article/54/12/e132/455959>) to apply evidence-based strategies to patient care.
- II. PGY2s should develop skills in evaluating new studies in published literature, through Journal Club and independent study.
- III. All residents should participate in case-based therapeutic decision-making, involving the primary care provider, wound care specialist and, where appropriate, other specialists.
- IV. Residents should learn to coordinate patient care as part of a larger team, including the wound care nurse, pharmacist, dietician, and social worker to optimize patient care, with PGY3s taking a leadership role.
- V. All residents should respond with positive changes to feedback from members of the health care team.

Interpersonal and Communication Skills

- I. PGY1s must
 - demonstrate organized and articulate electronic skills to accurately document important features of the wound, conditions that will affect healing, and a treatment plan
 - develop verbal communication skills that build rapport with patients and families and accurately convey information to other health care professionals.
- II. PGY2s must also develop interpersonal skills that facilitate the education of patients and their families and collaboration with other health professionals.
- III. PGY3s should demonstrate leadership skills to build consensus and coordinate a multidisciplinary approach to patient care.

Professionalism

- I. All residents must demonstrate strong commitment to carrying out professional responsibilities as reflected in their conduct, ethical behavior, attire, interactions with colleagues and community, and devotion to patient care.
- II. PGY1s should be able to educate patients and their families in a manner respectful of gender, age, culture, race, religion, disabilities, national origin, socioeconomic status, and sexual orientation on choices regarding their care.
- III. PGY2s should be able to use time efficiently in the clinic to see patients and chart information.
- IV. PGY2s should be able to counsel patients and families both on diagnostic and treatment decisions.
- V. PGY3s should be able to provide constructive criticism and feedback to more junior members of the team.

Systems-Based Practice

- I. PGY1s must have a basic understanding that their diagnostic and treatment decisions involve cost and risk and affect quality of care.
- II. PGY2s must be able to identify current quality issues in wound care.
- III. PGY3s must also demonstrate an awareness of alternative therapies and their costs, risks, and benefits, including use of hyperbarics, use of antibiotics, choice of dressings, and in-home versus in-hospital treatment.

Teaching Methods

- I. Supervised patient care, primarily in the outpatient setting.
 - Residents will initially be directly observed with patients to facilitate the acquisition of excellent history taking and physical exam skills.
 - As residents become more proficient, they will interact independently with patients and present cases to faculty.
 - Initial emphasis will be on diagnosis and basic management.
 - When residents have mastered these skills, focus will be on medical decision-making, and residents will work with supervising physicians to finalize a care plan.
- II. Conferences
 - Specialty-specific didactics
- III. Independent study
 - Journal and Textbook reading TBD by wound care attending
 - Online educational resources
 - Undersea & Hyperbaric Medical Society <https://www.uhms.org/>
 - Wound Care Education Institute <http://www.wcei.net/>
 - Pain management and addiction: <https://www.cdc.gov/drugoverdose/prescribing/resources.html>
 - Up to Date
 - Clinical Key

Evaluation

- I. Attending written evaluation of resident at the end of the rotation based on rotation observations and chart review.

Rotation Structure

- I. Residents should contact the supervising wound care physician the day prior to determine start time and location.
- II. Residents will see patients primarily in clinic and within this context, work toward the above educational goals. Additional educational experiences, such as in hospital wound care consultation and dedicated time on related specialty services, such as podiatry, plastics, and dermatology, may be arranged on an individual basis with the Program Director.
 - Residents will be involved in discussion of patient presentation, generation of a differential diagnosis, development of a treatment plan, and patient follow up.
 - When possible, residents should follow the same patients during the rotation.
 - Case-based learning is most effective. Nightly reading/study should be based on patients seen during the day.
 - If doing a Wound Care consult, the resident should understand the question asked and provide a concise answer.
- III. Residents may be asked to do focused literature searches or presentations during the course of the rotation.
- IV. Call and weekend responsibilities TBD by the attending physician
 - Hours worked must be consistent with ACGME requirements and are subject to approval by the Program Director.
- V. Residents have specialty-specific didactics and should be excused in a timely fashion to attend.