

Wound care requires diagnosis and management by a wound care specialist. Treatments for skin impairments can improve patient outcomes while saving both time and money. However, when interventions for cutaneous compromise are not diagnosed and/or managed appropriately, limbs and lives are lost. Moreover, integumentary morbidities become chronic, expensive, and debilitating.

The following guideline has been written utilizing both current evidence and expert opinion with regards to the standard of care for wounding for the clinical staff at The Ohio State University Wexner Medical Center. This is intended to be a guideline to help clinicians achieve best outcomes when treating patients with acute and chronic wounds.

## **Directory of Comprehensive Wound Service Providers (See Appendix B)**

IHIS Consult / IP Comprehensive Wound Service

Office: 614-366-9905 / Pager CON 118

- Debridement I&D
- Diagnosis
- Deep Tissue Culture
- Develop Treatment Plan

## **Directory and Indications for Certified Wound, Ostomy and Continence Nurses (CWOCNs)**

IHIS consult / IP Wound Ostomy Nursing Team or IP ET (ET = Enterostomal Therapist)

## **University Hospitals (Doan, Rhodes, Ross, Dodd, & Spine and Brain):**

Office: 614-293-8897

Charge Nurse Pager: 7399

## **James Cancer Hospital:**

Office: 614-685-4865

Charge Nurse Pager: 8888

## **OSU East:**

Office: 614-366-6599

Charge Nurse Pager: 7496

- Enterocutaneous Fistula Management
- Stoma
  - Pre-Op stoma marking
  - Existing ostomy not managing well
  - New ostomy
- Negative Pressure (i.e. Wound Vac) Evaluation, Complex Dressing Management
- Skin
  - Complicated skin tears
  - Incontinence Associated Dermatitis
  - Integument breakdown from medical devices
  - Pre-existing Wound(s)
  - Stable wounds with continuation of current treatment plan
  - Acquired pressure Injuries, Suspected Deep Tissue Injuries (DTIs)

## **Indication for Burns Consult**

- Any blistering or degloving skin eruption covering more than 10% total body surface area of integument
- Frostbite
- Electrical Injuries
- Steven Johnsons, TENS, (refer to [Steven Johnsons Syndrome](#) Guideline for more information)
- Burns (refer to [Burn Care: Initial Management](#) guideline for more information)

## **Indications for Dermatology Consult**

IHIS Consult/ IP Dermatology

- Skin Rashes
- Autoimmune Diseases with Integumentary compromise i.e. Psoriasis, Lupus, Dermatomyositis, etc.

## **Indications for Podiatry Consult**

IHIS Consult / IP Podiatry

- Diabetic foot wounds that may require surgery
- Open wounds below the knee that may need surgical intervention d/t infection or necrosis

## **Indications for Service Providers and Unit RNs**

- Clean, intact surgical wounds (Surgical Service)
- Legs with dry scaling skin or cellulitis without open Integument
- Uncomplicated Skin tears
- Stage I or stable stage II pressure ulcers present on admission
- Continued enteral cutaneous fistula management and drains
- Simple dressings.

## **Wound care Components Mandated by the Center for Medicare and Medicaid Services (CMS)**

### **1. Risk Assessment**

- The [Braden Scale](#), is used to help determine pressure ulcer risk. It must be used and interventions made based on the outcome of the assessment.
- The Braden assessment should be completed and preventive measures instituted on admission, every 24 hours after admission, and with each significant change.
- The Braden Scale evaluates sensory perception, moisture, activity, mobility, nutrition, friction, and shearing risks.
  - Scores < 18 suggest an increased risk for pressure ulcer development and should alert medical staff to institute preventative measures that correlate with the patient's category of risk.
- Preventive interventions should be incorporated into each patient's individual plan of care.

### **2. Wound Evaluation**

- Wounds must be evaluated within 24 hours of patient admission.
- Wounds must be evaluated at least weekly and prn.

- The criteria listed below must be included in the evaluation and compared with each subsequent wound assessment.
  - Name of patient
  - Date of evaluation
  - Location of wound
  - Wound diagnosis and stage or tissue depth
  - Pain during evaluation (1-10) with documentation of intervention if patient is in pain
  - Sinus tract/ tunneling
  - Undermining
  - Exudate type
  - Exudate amount
  - Granulation tissue color
  - Granulation tissue amount
  - Necrotic tissue type
  - Necrotic tissue amount
  - Peri-wound
  - Odor
  - Stage / thickness
  - Progress
  - Exposed tendon, bone, hardware, epithelization amount

### 3. Wound Diagnosis

- Wounds must be diagnosed and the diagnosis must be documented in the patient's chart by a clinician who can medically diagnose.
- If the wound manifestations do not clearly point to a definitive diagnosis and/or if the wound(s) have been present for > 3 months and are not improving, a wound biopsy is indicated.
- If wound etiology is ambiguous and/or diagnosis complex, consult with Comprehensive Wound Service for assistance:
  - Comprehensive Wound Service
    - **Office:** 614-366-9905
  - University Hospital CWOCNs
    - **Office:** 614-293-8897
  - The James CWOCNs
    - **Office:** 614-685-4865

### 4. Interventions

- Interventions for each wound diagnosis must be consistent with today's standards for evidence-based wound care and must meet each patient's individual needs and goals.
- Please see [The Wound Product Guide](#) for Evidence Based Products available on formulary at OSUWMC

### 5. Wound Care Plans, Revisions and Follow-Up

- Care plan revisions must be implemented weekly or more frequently if wound is deteriorating based on wound evaluations.
- According to CMS, and as instituted by OSUWMC, patients with open integument must have their wound(s) evaluated and a plan of care created upon admission.
- Patients' wounds must be re-evaluated and their plan of care revised, pending outcomes, during wound evaluations, at least weekly and more frequently with any significant changes.
- Interventions should be consistent with the standard of wound care as outlined by today's wound experts i.e. Wound Healing Society (WHS), Wound, Ostomy and

Continence Nurses Society (WOCN), and National Pressure Ulcer Advisory Panel (NPAUP).

#### • **For Short Term Treatment:**

- Evaluate for drainage and any sign of infection
- For steps on how to treat the open wound, Please refer to the '**Short Term Treatment of Patients with Open Wounds**' grid in Appendix A.

### Nutrition

- All patients to be screened clinical nutrition services within 72 hours of admit
- Dietary/supplement recommendations will be added to patient Plan of Care by dietitian
- Vitamin supplementation will be instated for patients with documented insufficiencies per dietitian's recommendations
- OSUWMC Nutrition Patient Education:
  - [Nutrition and Wound Healing](#)

The Evidence Analysis Library from the Academy of Nutrition & Dietetics does not show high grade evidence for specifics related to nutrition, however, there's a consensus among practitioners to provide very specific calorie, protein and fluid recommendations in wound patient assessments outlined below. This information is currently being utilized to guide the dietary interventions for wound care patients at OSUWMC at the time this guideline is being updated:

- **Calories:** 30-40kcal/kg
- **Protein:** 1.2-1.8g/kg
- **Fluid:** 30mL/kg or 1mL/kcal + coverage for wound losses and/or air fluidized mattress

### Pressure Injury Staging

**\*Note:** Do NOT stage non-pressure injuries

Definitions taken from NPUAP, 2016 DPU Revision

#### **Stage I: Non-blanchable epithelium**

- Intact skin with a localized area of non-blanchable erythema, which may appear differently in darkly pigmented skin.
- Presence of blanchable erythema or changes in sensation, temperature, or firmness may precede visual changes.
- Color changes do not include purple or maroon discoloration; these may indicate deep tissue pressure injury.

#### **Stage II: Open down to Dermis**

- Partial-thickness skin loss with exposed dermis.
- The wound bed is viable, pink or red, moist, and may also present as an intact or ruptured serum-filled blister.
- Adipose (fat) is not visible and deeper tissues are not visible.
- Granulation tissue, slough and eschar are not present.
- These injuries commonly result from adverse microclimate and shear in the skin over the pelvis and shear in the heel.

#### **Stage III: Open down to Subcutaneous Tissue**

- Full-thickness loss of skin, in which adipose (fat) and granulation tissue is visible and often times, wound has epibole (rolled wound edges).
- Slough and/or eschar may be visible.

- The depth of tissue damage varies by anatomical location; areas of significant adiposity can develop deep wounds.
- Undermining and tunneling may occur.
- Fascia, muscle, tendon, ligament, cartilage or bone is not exposed.
- If slough or eschar obscures the extent of tissue loss this is an Unstageable Pressure Injury.

#### Stage IV: Full thickness tissue loss

- Full-thickness skin and tissue loss with exposed or directly palpable fascia, muscle, tendon, ligament, cartilage or bone in the ulcer.
- Slough and/or eschar may be visible.
- Epibole (rolled edges), undermining and/or tunneling often occur.
- Depth varies by anatomical location.
- If slough or eschar obscures the extent of tissue loss this is an Unstageable Pressure Injury.

#### Unstageable: Depth unknown

- Full-thickness skin and tissue loss in which the extent of tissue damage within the ulcer cannot be confirmed because it is obscured by slough or eschar.
- If slough or eschar is removed, a Stage 3 or Stage 4 pressure injury will be revealed.
- Stable eschar (i.e. dry, adherent, intact without erythema or fluctuance) on an ischemic limb or the heel(s) should not be softened or removed.

#### Deep Tissue Injury with Intact Epithelium DTI

- Intact or non-intact skin with localized area of persistent non-blanchable deep red, maroon, purple discoloration or epidermal separation revealing a dark wound bed or blood filled blister.
- Pain and temperature change often precede skin color changes.
- Discoloration may appear differently in darkly pigmented skin.
- This injury results from intense and/or prolonged pressure and shear forces at the bone-muscle interface.

#### Treatment for Mucosal Membranes and Cartilage:

- **Mucosal Membranes:** It is the opinion of the NPUAP that pressure injuries to mucosal membranes not be staged or labeled partial or full thickness wounds. As such, please do not assign a stage to these wound types.
- **Cartilage:** It is the opinion of the NPUAP that wounds with exposed cartilage, regardless of anatomical location, serves the same function as bone and should be categorized as stage IV pressure injuries when created by ischemia caused by a pressure component.

#### Diabetic Foot Wound Staging / Wagner Scale

Diabetic ulcer grading (diabetic lower extremity ulcers only):

- **Wagner 0:** Pre-ulcer lesions; healed ulcers; presence of bony deformity.
- **Wagner 1:** Superficial ulcer without penetration to deeper layers of entire dermis.
- **Wagner 2:** Full thickness ulcer that penetrates through subcutaneous tissue and may expose tendon, bone, joint, or ligament.
- **Wagner 3:** Same criteria as a Wagner 2 with evidence of infection: abscess, osteitis, osteomyelitis, pyarthrosis, or

infection of the tendon and tendon sheath. This does not include soft tissue infection.

- **NOTE:** Diabetic patients may not exhibit classic signs of infection
  - I.e. Redness, warmth fluctuance. Occasionally, only the symptom of infection for these patients is pain in an otherwise insensate foot.

- **Wagner 4:** Wet or dry gangrene in a toe, toes, forefoot, or any area with localized gangrene. Gangrene is defined as necrosis and subsequent decay of body tissue caused by infection, thrombosis, or lack of blood flow. It may present as eschar and may involve the heel, ankle, or part of the lower extremity.
- **Wagner 5:** Gangrene of the lower extremity requiring amputation.
- **NOTE:** All wounds other than pressure ulcers and diabetic foot wounds should be described as either partial-thickness or full-thickness wounds and not staged.
  - **Partial Thickness Wounds:** Non-pressure/non-diabetic wounds including or above the subcutaneous tissue
  - **Full Thickness Wounds:** Non-pressure/ non-diabetic wounds below the subcutaneous tissue.

#### Wound Care after Discharge

- Every patient with a wound should follow up within 1-2 weeks after discharging.
- If the patient lives locally, he/she should be referred to one of our two outpatient wound clinics, listed below.
- For patients who live out of town, please let The Comprehensive Wound Service know if you would like assistance getting patients set up with a certified wound center near their home by calling (614)-366-9905 or (614)-366-7292.
- To make an appointment at OSU, please call
  - **UH:**(614)293-4811 or 1-888-340-3163
  - **UHE:** (614)257-3110
 -Or- visit the [Comprehensive Wound Centers](#) webpage.

#### OSUWMC Outpatient Wound Clinics:

**McC Campbell Hall-3<sup>rd</sup> Floor**  
1581 Dodd Drive  
Columbus, Ohio 43210  
(614)293-9981

**University Hospital East-9<sup>th</sup> Floor**  
181 Taylor Avenue  
Columbus, Ohio 43230  
(614)257-3110

#### OSUWMC Resources

- **Websites:**  
For more information about wound care at OSUWMC, see The [Skin/Wound Management](#) page on OneSource.
- **STAND** Skin Bundle implementation
  - S: Score on Risk Scale
  - T: Turn & Offload/ Reposition Tubes & Devices
  - A: Apply Barrier Cream or Bordered Foam Dressing
  - N: Nutritional Intervention
  - D: Discuss with Specialist

## External Resources

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The following evidence-based accredited professional organizations are cited in CMS's Federal Guidelines for wound care and followed by the OSUWMC Comprehensive Wound Service (CWS):

- [Agency of Healthcare Research and Quality \(AHRQ\)](#) 5
- [American Medical Directors Association \(AMDA\)](#)
- [Certified Wound, Ostomy, and Continence Nurses Society \(CWCN\)](#)
- [Medicare Quality Improvement Community Initiatives](#)
- [National Pressure Ulcer Advisory Panel \(NPUAP\)](#)
- [Wound Healing Society](#)

## Quality Measures

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- Inpatient Wound Consults
- Recurring Wound Patients within the month
- Hospital-acquired pressure ulcers
- Amputations
- Hyperbaric referrals

## Reference

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- 1 D'Donnell, T.F. et al. (2014). Management of Venous leg ulcers: clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. *J Vasc Surg*. 60(2), 3s-59s.
- 2 Edsberg L.E., et al. (2017). Revised National Pressure Ulcer Advisory Panel Pressure Injury Staging System: Revised Pressure Injury Staging System. *Journal of wound, ostomy, and continence nursing: official publication of The Wound, Ostomy and Continence Nurses Society / WOCN*. Nov/Dec 2016; 43(6):585-597.
- 3 Edsberg L.E., et al. (2014). Unavoidable pressure injury: state of the science of consensus outcomes. *Journal of wound, ostomy, and continence nursing: official publication of The Wound, Ostomy and Continence Nurses Society (WOCN)*, 41(4): 313-334.
- 4 European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. *Prevention and Treatment of Pressure Ulcers: Clinical Practice Guidelines*. Washington, DC: National Pressure Ulcer Advisory Panel; 2009.
- 5 Gould, L. et al. (2016). Wound healing society 2015 update on guidelines for pressure ulcers. *Wound Repair and Regeneration*, 24(1). 145-162.
- 6 Kirman, C.N. et al (2016). Pressure Injuries (Pressure Ulcers) and Wound Care Guidelines. Retrieved at <http://emedicine.medscape.com/article/190115-guidelines#g4>.
- 7 Lal, B.K. (2015). Venous Ulcers of lower extremity: definition, epidemiology and economic and social burdens. *Semin Vasc Surg*, 28(1), 3-5.
- 8 National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel, Pan Pacific Pressure Injury Alliance. *Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline*. Emily Haesler (ED.). Osborne Park, Western Australia: Cambridge Media, 2014.
- 9 Sibbald, R.G., et al. (2015). Optimizing the moist management tightrope with wound bed preparation. *Adv Skin Wound Care*. 28(10), 466-476.
- 10 Wound, Ostomy, and Continence Nurses Society. (2013). *A quick Reference Guide for Lower- Extremity Wounds: Venous, Arterial and Neuropathic*. Mt. Laurel, NJ: Wound, Ostomy, and Continence Nurses Society (WOCN).

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## Guideline Approved

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**Disclaimer:** *Clinical practice guidelines and algorithms at The Ohio State University Wexner Medical Center (OSUWMC) are standards that are intended to provide general guidance to clinicians. Patient choice and clinician judgment must remain central to the selection of diagnostic tests and therapy. OSUWMC's guidelines and algorithms are reviewed periodically for consistency with new evidence; however, new developments may not be represented.*

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## Appendix A: Short Term Treatment of Patients with Open Wounds

<b>DRAINAGE</b>	<p style="text-align: center;"><b>Drainage / NOT Infected</b></p> <ol style="list-style-type: none"> <li>1. Rinse w/NS</li> <li>2. Fill with Mesalt</li> <li>3. Cover w/ABD</li> <li>4. Secure with occlusive Tegaderm or Opsite</li> <li>5. Change dressing daily + PRN</li> </ol>	<p style="text-align: center;"><b>Drainage / Infected</b></p> <ol style="list-style-type: none"> <li>1. Send small piece of wound tissue (preferably without necrosis) to microbiology in a sterile cup in normal saline for aerobic, anaerobic &amp; fungal C&amp;S and gram staining</li> <li>2. Consult IP Comprehensive Wound Service</li> <li>3. Treat wound locally as follows:             <ol style="list-style-type: none"> <li>a. Irrigate ¼ strength Dakins</li> <li>b. Rinse w/NS</li> <li>c. Fill w/Mesalt</li> <li>d. Cover w/ABD followed by Opsite or Tegaderm daily &amp; PRN</li> </ol> </li> </ol>
	<p style="text-align: center;"><b>NO Drainage / NOT Infected</b></p> <ol style="list-style-type: none"> <li>1. Cover with ABD</li> <li>2. Secure w/either Kerlix or paper tape and</li> <li>3. Monitor daily &amp; PRN</li> </ol>	<p style="text-align: center;"><b>NO Drainage/ Infected</b></p> <ol style="list-style-type: none"> <li>1. Send small piece of tissue (preferably without necrosis) to microbiology for aerobic, anaerobic &amp; fungal C&amp;S and gram staining</li> <li>2. Consult IP Comprehensive Wound Service</li> <li>3. Treat wound(s) locally as follows:             <ol style="list-style-type: none"> <li>a. Irrigate ¼ strength Dakins</li> <li>b. Rinse w/ NS</li> <li>c. Cover wound w/ ABD</li> <li>d. Secure ABD w/ Kerlix if wound is on leg or arm or porous tape if wound is on torso</li> <li>e. Change daily &amp; PRN</li> </ol> </li> </ol>

### INFECTION

If the patient needs to be seen immediately in the inpatient setting, consult IP Comprehensive Wound Service or PAGE **1424**.

### Appendix B: Services by Wound Care Teams

