

PRESSURE ULCERS

AGS Geriatrics Evaluation and Management Tools (Geriatrics E&M Tools) support clinicians and systems that are caring for older adults with common geriatric conditions.

From the AMERICAN GERIATRICS SOCIETY

Geriatrics Evaluation & Management Tools

DEFINITION	A localized injury to the skin and/or underlying tissue, usually over a bony prominence, that results from pressure or from pressure in combination with shear			
SCREENING	<ul style="list-style-type: none"> Validated scales for identifying older adults who are at risk of developing pressure ulcers: Braden Scale (www.bradenscale.com/images/bradenscale.pdf) and Norton Scale Systematic skin inspection at least daily with emphasis on bony prominences for all at-risk older adults 			
HISTORY	Consider risk factors such as dermatitis, devices (tubing, splints, masks, etc), pressure and shear forces.			
PAST MEDICAL HISTORY	Impaired mobility	Diabetes	Congestive heart failure	Anemia
	Venous or arterial disease	Cognitive impairment	Fever	Lymphoma
	Low BMI/malnutrition	Stroke	Sepsis	Hypoalbuminemia
	Restraints	Pneumonia	Hypotension	Dermatologic diseases
	Incontinence	Malignancy	Renal failure	History of pressure ulcers
SOCIAL HISTORY	Living situation, caregiver stress, substance abuse, tobacco use, history of abuse or neglect			
MEDICATIONS	Sedating medications, long-term corticosteroid use, vasopressors			
PHYSICAL EXAMINATION	STAGE	DEFINITION		
	Deep tissue injury	Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure or shear, or both. The area may be preceded by tissue that is painful, firm, mushy, boggy, or warmer or cooler than adjacent tissue. Evolution can be rapid and expose additional layers of tissue, even with optimal treatment.		
	I	Intact skin with nonblanchable redness of a localized area, usually over a bony prominence. Can be difficult to detect in dark skin tones.		
	II	Partial-thickness loss of dermis presenting as a shallow open ulcer with a red-pink wound bed, without slough. Can also present as an intact or open/ruptured serum-filled blister. Should not be used to describe skin tears, tape burns, perineal dermatitis, maceration, or excoriation.		
	III	Full-thickness tissue loss. Subcutaneous fat can be visible but bone, tendon, or muscle is not exposed. Slough may be present but does not obscure the depth of tissue loss. Can include undermining and tunneling.		
	IV	Full-thickness tissue loss with exposed bone, tendon, or muscle. Slough or eschar can be present on some parts of wound bed. Often includes undermining and tunneling.		
	Unstageable	Full-thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green, or brown) or eschar (tan, brown, or black), or both, in the wound bed. Until enough slough and/or eschar is removed to expose the base of the wound, the true depth (and therefore stage) cannot be determined.		
	<ul style="list-style-type: none"> Location—Describe and pay attention to high-risk sites. Area—Measure diameter for circular lesions vs. length and width for irregularly shaped lesions. Depth—Measure depth from plane of skin and probe for undermining and tunneling. Drainage—Describe amount, odor, purulence. Necrosis—Describe percent necrosis; monitor pressure dressings (which can cause necrosis). Granulation—Identify areas of granulation or regression to document healing. Cellulitis—Assess for tenderness, warmth, redness, and induration (differentiate from a thin rim of erythema surrounding most healing wounds). 			
DIAGNOSTIC TESTS	<ul style="list-style-type: none"> Oxygen delivery: hemoglobin/hematocrit, ankle-brachial index, pulse volume recording, Doppler ultrasound Nutrition: albumin/pre-albumin (unreliable in setting of inflammation) Endocrinopathies: thyroid-stimulating hormone, hemoglobin A_{1c} Indicators of infection or inflammation: increased WBC count, erythrocyte sedimentation rate, C-reactive protein, MRI for suspicion of osteomyelitis, swab cultures are best reserved for wounds with purulent drainage in setting of high suspicion for infection 			
PREVENTION	Many pressure ulcers are unavoidable and may be a marker of disease severity or impending death—NOT poor quality care. The National Pressure Ulcer Advisory Panel defines an unavoidable pressure ulcer as one that develops despite the provider having: <ul style="list-style-type: none"> Evaluated the individual's clinical condition and pressure ulcer risk factors Defined and implemented interventions consistent with individual needs, goals, and recognized standards of practice Monitored and evaluated the impact of the interventions, revising the approaches as appropriate 			
	Skin care	<ul style="list-style-type: none"> Treat dry skin with moisturizers. Avoid exposure to perspiration, wound drainage, or urine and fecal matter (incontinence). 		
	Nutrition	<ul style="list-style-type: none"> Perform nutrition assessment and optimize nutrition; weak evidence for supplements. 		
	Minimize pressure and shear	<ul style="list-style-type: none"> Use lubricants, protective films, protective dressings (eg, hydrocolloids), and protective padding. Use bed-positioning devices (eg, pillows, foam wedges) to keep bony prominences from direct contact with surfaces. Head of the bed should be at lowest degree of elevation consistent with medical conditions. Use lifting devices (trapezes or draw sheet) to lift rather than slide the patient. Reposition at least q2h if lying; shift weight q15min if seated. Maintain or improve mobility if possible. At-risk older adults should rest on a pressure redistribution device (eg, foam, static air, gel, water, or a combination). 		

GENERAL MANAGEMENT

- Consider and clearly document the patient's goals when forming a treatment plan.
- Primary dressings are applied directly to the wound bed; secondary dressings secure or cover the primary dressing.
- Consider using barrier paste (with a zinc base) for an open shallow wound that is exposed to incontinence.

Ulcer type	Shallow (Stages I or II)	Deep (Stages III or IV)
Dry	Primary dressing: Thin hydrocolloid, thin polyurethane foam, transparent films, hydrogel Secondary dressing: Non adherent gauze	Primary dressing: Fill wound with hydrogel-impregnated gauze and cover with nonadherent contact layer (eg, vaseline gauze). Secondary dressing: Transparent thin film, polyurethane foam, nonadherent gauze
Wet	Primary dressing: Absorbant dressing such as alginate or foam Secondary dressing: Nonadherent gauze	Primary dressing: Foam, fill wound with alginate, single gauze strip/roll, foam or other absorbent dressing Secondary dressing: Transparent thin film, polyurethane foam

DRESSINGS

TYPE ^a	INDICATION(S)	CONTRAINDICATION(S)	SPECIAL INSTRUCTIONS
Transparent film	Stages I and II; protects from friction; superficial scrape	Draining ulcers; suspected skin infection or fungus	Apply skin prep to intact skin to protect from adhesive
Foam ^b	Stages II and III; low to moderate exudate	Excessive exudate; dry, crusted wound; dry eschar	Leave in place 3–5 days ^c
Hydrocolloid ^b	Stages II and III; low to moderate drainage; autolytic debridement of slough; reduces wound pain, preventive for high-risk friction areas	Fragile skin; infected ulcer; heavily draining wounds, sinus tracts	Leave in place 3–7 days ^c ; can apply over alginate to control drainage; apply skin prep to intact skin to protect from adhesive
Hydrogel ^b , amorphous	Stages II, III, and IV; dermabrasion; skin tears; necrotic ulcers; reduces pain; rehydrates ulcer bed; loosens slough and necrosis; pack wounds with hydrogel-saturated gauze instead of saline for better moisturization	Heavily draining wounds	Leave in place 1–3 days depending on type of gel; may require secondary dressing ^c
Hydrogel, sheet	Stage II	Maceration, moderate to heavy exudate	Needs to be held in place with topper dressing
Calcium alginate ^b	Stages III and IV; excessive drainage; sinus tracts, tunnels, or cavities	Dry or minimally draining wound; dry eschar; superficial wounds with maceration	Leave in place 1–2 days; apply dressing within wound borders; apply skin prep to intact skin to protect from adhesive; requires secondary dressing; may produce odor during dressing change ^c
Collagen ^b	Stage III and selected Stage IV (refer to package insert); light to moderate exudate; chronic, nonhealing ulcers	Sensitivity to collagen or bovine products; necrotic ulcers	Leave in place 1–3 days; may be combined with topical agents; rehydration may be necessary
Silver dressings	Malodorous, exudative wounds, and those highly suspicious for critical bacterial load	Sensitivity to silver; systemic infection; cellulitis; fungus; interstitial nephritis; skin necrosis; leukopenia	Need exudate, hydrogel, or collagen present to release silver; inactivates enzymatic debriding agents

^a Other dressing types not discussed include 1) specialty absorptive dressings that are highly absorptive layers of fibers (eg, cellulose, cotton, rayon) and 2) composites that combine physically distinct components into a single dressing to provide a bacterial barrier, absorptive outer layer, and an adhesive border.

^b Products also available with silver

^c Must use caution to avoid periwound maceration

DEBRIDEMENT

- Decision to sharply debride necrotic tissue should be made by experienced clinicians.
- Stable (dry, adherent, intact, without erythema or fluctuance) eschar on extremities serves as "the body's natural (biological) cover" and should not be removed. Unstable (soft) eschars do need debridement.
- Types of debridement include sharp, autolytic (eg, moisture-retaining dressings or hydrogels), mechanical (eg, wet-to-dry dressings), chemical (eg, topical enzymes such as Accuzyme, Santyl), and biologic (eg, larvae).

INFECTION CONTROL

- Wound cleansing and dressing changes are two of the most important methods for minimizing bacterial colonization.
- Consider topical antimicrobials if there is failure to heal or persistent exudate after 2 weeks (eg, silver sulfadiazine).
- Avoid routine swabs.
- If not healing, consider cellulitis, osteomyelitis, or malignancy (needs biopsy).

PALLIATIVE MANAGEMENT

- Mnemonic "SPECIAL": **S**tabilize the wound; **P**revent new wounds; **E**liminate odor; **C**ontrol pain; **I**nfection prophylaxis; **A**bsorbent wound dressings; **L**essen or reduce dressing changes

FOLLOW-UP/ REFERRAL

- Surgical referral is warranted for Stage IV and severely undermined/tunneled ulcers. If wound is distal and arterial circulation is poor, consult vascular surgery.
- Monitoring: no reverse staging; rather, "This is a healing stage ___"; use the Pressure Ulcer Scale for Healing or the Pressure Sore Status Tool.