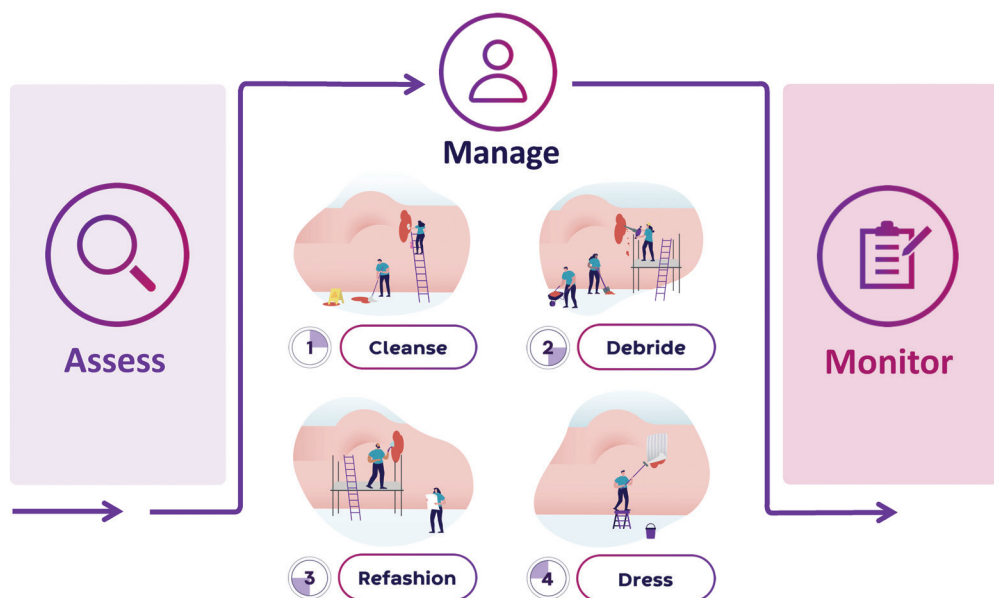


proactive wound healing

A GUIDE TO IMPLEMENTATION OF THE WOUND
HYGIENE PROTOCOL OF CARE FOR PRESSURE ULCERS

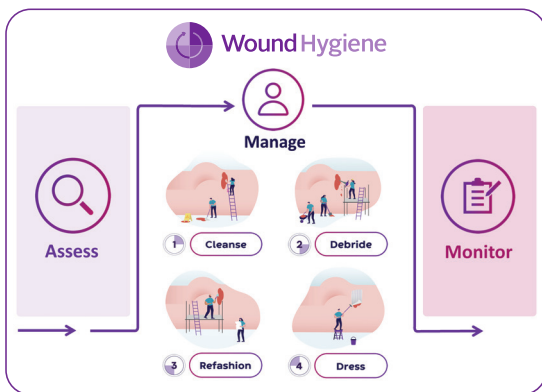


Pressure ulcers (PUs) are often painful, and they can also cause reduced mobility, malodour and leakage, all of which impair independence and ability to perform activities of daily living. This not only undermines overall quality of life, but it can take patients and their loved ones out of employment, with major financial implications. The physical and social impacts of pressure ulceration can be severe.^{1,2}

Deeper PUs are associated with increased morbidity and mortality. Established ulcers can lead to soft-tissue infection and even osteomyelitis and bacteraemia.³ These complications cause more hospital admissions and increase the hospital length of stay, while infection is, itself, a predictor of morbidity and mortality in older people. Therefore, more severe PUs incur higher treatment costs.⁴

PUs have a high health-economic burden. In the UK, the estimated mean annual cost to the NHS of treating PUs is £531.14 million.⁵ In Australia, the cost of PUs to public hospitals in 2020 was \$9.11 billion.⁶ In the US, the cost burden of hospital-acquired PUs is thought to be \$26.8 billion.⁷ There is limited national cost data for other regions.

To reduce these burdens, health professionals should try to prevent pressure ulceration by identifying those at highest risk. Where ulceration has occurred, the aim should be to prevent deterioration and promote healing. This can best be achieved with the Wound Hygiene framework, with its proactive antibiofilm strategy and holistic approach to wound care.⁸⁻¹⁰ This involves addressing psychosocial issues, treating underlying comorbidities, providing nutritional support and responding to the wound aetiology, with offloading and pressure redistribution in PUs. This is a guide to using Wound Hygiene to assess, manage and monitor PUs to promote healing.



Understanding biofilm

Severe PUs are often less responsive to treatment and have poorer outcomes.¹¹ This is a matter of tissue type, as these wounds are characterised by necrotic, sloughy, and/or unhealthy granulation tissue, which harbour far more biofilm than the healthy granulation tissue and epithelial tissue found in less severe wounds. Biofilm is resistant to treatment, so delays healing. As all wounds contain some level of biofilm,⁸ they should always be regarded as hard to heal, as there is always potential for deterioration. Therefore, healing PUs should involve use of Wound Hygiene's proactive antibiofilm strategy.

What is unhealthy granulation tissue?

This is a relatively new term for granulation tissue in a wound that is failing to progress but does not necessarily look unhealthy. It is typically dark red and friable.¹⁰

The information included here is for general guidance only and health professionals must also refer to their local policy and guidelines

Assess



As soon as possible after a patient presents with a PU, undertake a full holistic assessment of the ulcer and the patient's needs.

- ▶ To optimise outcomes, it is essential this includes patient quality of life, comorbidities, risk status and risk factors, nutritional requirements, need for adjunct therapies such as pressure redistribution and the wound management strategies required, including Wound Hygiene. It must also identify treatment goals⁸
- ▶ To focus on the desired healing outcome, the wound should be given a first name (aetiology, here the category) and last name (wound type, here PU), eg category IV PU.⁸

Risk factors

Identify risk factors, especially those associated with impaired perfusion and ischaemia, to help predict and avert delayed and difficult healing¹²

Comorbidities

- ▶ Autoimmune conditions
- ▶ Cardiovascular disease
- ▶ Diabetes mellitus
- ▶ History of PUs
- ▶ Neuropathy
- ▶ Spinal cord or critical care patients

General health status

- ▶ Extremes of age
- ▶ Extremes of body weight
- ▶ Impaired senses
- ▶ Limited mobility
- ▶ Nutritional deficiency
- ▶ Significant cognitive impairment

Extrinsic factors

- ▶ Increased temperature and moisture on skin surface
- ▶ Prolonged skin exposure to medical devices
- ▶ Recent immobilisation before and during surgery

Quality of life

Assess impact on quality of life with a tool, such as the Pressure Ulcer Quality of Life Prevention Instrument¹³

Symptoms

- ▶ Pain
- ▶ Exudate
- ▶ Odour
- ▶ Itchiness

Physical function

- ▶ Sleep
- ▶ Mobility
- ▶ Daily activities
- ▶ Vitality

Psychological wellbeing

- ▶ Appetite²
- ▶ Emotional wellbeing
- ▶ Self-consciousness and appearance

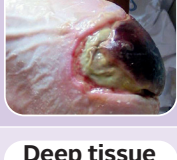
Repositioning and pressure redistribution

Determine how easily and frequently the patient with a PU can be repositioned to prevent prolonged exposure to pressure. This may depend on their mobility, skin condition and general health, as well as the risk of discomfort and pain.¹²

Assess whether the patient with a PU needs a specialist support surface for enhanced pressure redistribution. This may be due to multiple, severe and/or hard-to-heal ulcers in difficult places or a high risk of further ulceration. It could also be due to obesity, discomfort or limited mobility, increased microclimate (particularly in intensive care), as well as recent flap or graft surgery.¹²

Categorise

Categorise (stage) the level of skin damage (e.g., category II)^{6,10}

Category	Description
I 	Intact skin with non-blanchable redness of a localised area, usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its colour may differ from the surrounding area. The area may be painful, firm, soft, warmer or cooler compared with adjacent tissue ¹⁶
II 	Partial-thickness loss of dermis presenting as a shallow open ulcer with a red/pink wound bed, without slough. Can also be a blister filled with serous fluid
III 	Full-thickness tissue loss; subcutaneous fat may be visible, but bone, tendon or muscle are 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* (referred to as necrotic tissue in the rest of this guide) may be present; often includes undermining and tunneling
Unstageable 	Full-thickness tissue loss of an extent obscured by slough and/or necrotic tissue
Deep tissue injury 	Injury resulting from deep shear at bone–muscle interface; skin with non-blanchable, red/purple discolouration (often preceded by pain or numbness and temperature change) or epidermal separation revealing a dark wound bed or blood-filled blister

*Eschar is a type of necrotic tissue that is dryer than slough and presents as dry, thick, leathery tissue that is often brown or black.
Note: not all PUs (e.g. mucosal PUs) can be properly categorised.

Recognising tissue types

Management of a PU according to the Wound Hygiene framework should be tailored to the predominant tissue type(s) present on the wound bed.



Necrotic tissue

Black or brown; can be adherent (hard, dry or leathery) or soft and wet



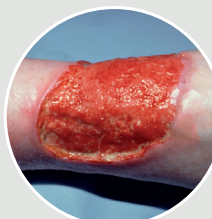
Slough

Yellow or white; usually wet, sometimes dry and adherent; thick patches or a thin coat



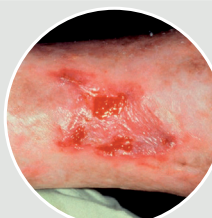
Unhealthy granulation

Typically dark red; often bleeds when touched; can be friable



Healthy granulation

Newly formed tissue; bright red, moist and shiny; cobblestone-like



Epithelial

Pale pink or white; migrates across wound surface from the edges; initially, can be fragile

Manage



Use the information gained in a comprehensive assessment to guide holistic management. **For pressure ulcers of category II and above** when the skin is not intact, wound management should follow the four steps of Wound Hygiene, cleanse, debride, refashion and dress, throughout the healing trajectory.⁸

Holistic management of pressure ulceration

PU management strategies can be incorporated into a care bundle or other tools designed to deliver best practice. This may involve:

- ▶ Skin care to promote skin integrity
- ▶ Protecting skin from moisture damage
- ▶ Nutritional support and hydration
- ▶ Repositioning schedules and promotion of patient mobility
- ▶ Management of comorbidities
- ▶ Pressure redistribution and offloading
- ▶ Manual-handling techniques and devices
- ▶ Seating designed for the patient's size
- ▶ Use of foam dressings to prevent skin breakdown
- ▶ Self-care and patient education

Implementing Wound Hygiene

Cleanse

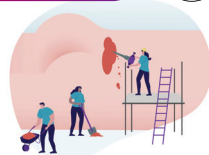


Cleanse both the wound bed and surrounding skin

- ▶ Remove dead skin scales and callus
- ▶ Use a dedicated clean cloth to avoid cross-contamination
- ▶ Use cleansing solutions with antimicrobials in suspected or confirmed infection
- ▶ Avoid disturbing stable, hard, dry necrotic tissue in ischaemic limbs and heels, unless infection is suspected.

Tissue type	Cleansing methods
Necrotic, sloughy and/or unhealthy granulation tissue	Vigorous cleansing (with gauze, soft pad, pH-balanced or surfactant solution)
Healthy granulation tissue	Moderate or gentle cleansing
Epithelial tissue/intact skin	Gentle cleansing

Debride



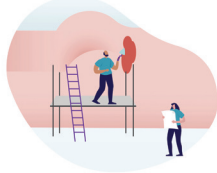
Debride non-epithelialising tissue with appropriate vigour to remove biofilm and promote growth of healthy tissue

- ▶ Select method based on experience, training and confidence
- ▶ Exercise caution when debriding PUs on the heel of patients with poor perfusion or autoimmune disorders
- ▶ After debridement, cleanse the wound with an antiseptic solution to avoid contamination by exposed microbes.

Tissue type	Vigour	Debridement methods
Necrotic, sloughy and/or unhealthy granulation tissue	Vigorous	Surgical, sharp (curette, scalpel, scissors or forceps), larvae (not on dry necrotic tissue), ultrasound or mechanical (pad, gauze or wipes)
Healthy granulation tissue	Gentle	Mechanical (gauze, soft pads or wipes)
Epithelial tissue/intact skin	None	None

Refashion

3



Refashion The primary cells that facilitate epithelialisation are located on the wound edges. Biofilm is most active here,¹⁴ where it promotes cell senescence (loss of cells' power to divide and grow), preventing the migration of new, healthy tissue.⁹ Refashioning the edges to remove necrotic, sloughy and/or unhealthy granulation tissue (and thus biofilm) will promote healing.^{8,9} It can also help manage epibole (rolled edges).

- ▶ Agitate the wound edges until pinpoint bleeding occurs^{8,9}
- ▶ Aim to make the edges the same height as the wound bed
- ▶ This should remove areas that can harbour biofilm⁹
- ▶ Select a method, from a soft debridement pad or gauze to a blade (to achieve pinpoint bleeding), based on skill level.

Tissue type	Strategy
Necrotic, sloughy and/or unhealthy granulation tissue	Agitate the wound edges to pinpoint bleeding ⁸
Healthy granulation tissue	Gently and selectively rub the wound edges in a circular motion ⁸

Dress

4



Dress the PU to proactively disrupt and destroy biofilm or to manage residual bacteria to prevent colonisation and, therefore, biofilm reformation^{8,9}

- ▶ This should also promote a healthy wound environment
- ▶ Dressing selection should be based on the predominant tissue type, wound depth and its likely exudate volume.

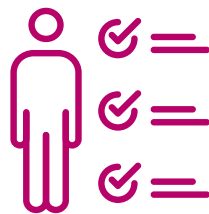
Selecting a dressing

Cleansing and debridement help prepare the wound for dressing.¹⁵ Depending on its properties, a dressing can prevent or reduce biofilm re-formation, but it should always promote the moisture balance needed for healing to occur. The choice of dressing will depend on the wound's position in the healing trajectory:

- ▶ Pressure ulcers likely to contain significant amount of biofilm (characterised by the presence of necrotic, sloughy and/or unhealthy granulation tissue, as well as excess exudate) will require an antimicrobial dressing with antibiofilm properties; its absorbency will need to reflect the volume and consistency of the exudate being produced.^{8,9}
- ▶ When the pressure ulcer has improved, with granulation tissue formation and/or epithelialisation present, stepping down to a non-antimicrobial dressing will maintain a moist environment conducive to healing. Wound Hygiene should continue to be implemented at every dressing change.^{8,9}

The PU should be assessed at each dressing change, and the dressing's effectiveness should be reviewed every 2–4 weeks.⁹

Monitor



The patient's and wound's progress should be re-assessed at each dressing change or every 2–4 weeks. This is to monitor the efficacy of the wound management strategy and progress towards the treatment goals of the patient and health professional.

The wound

Each wound assessment should monitor the following:

- ▶ Trends in wound size and appearance
- ▶ Changes in wound bed characteristics
- ▶ Condition of the wound edges
- ▶ Occurrence of malodour, which is indicative of high bioburden
- ▶ Presence of undermining or tunnelling.

If there is no timely progression towards healing, a full holistic assessment should be undertaken to determine that any underlying aetiologies, risk factors and comorbidities are being effectively addressed and if any steps of the treatment regimen should be adapted.

Documenting deterioration and improvement

The progress of a PU should be documented after each assessment. PUs that have deteriorated may be documented as a more severe category. However, those that have improved should be documented by their most severe category followed by 'healing', rather than be downgraded to a less severe category.



The patient

The effect of the PU on the patient's quality of life and general wellbeing should be regularly assessed. Ask the patient if the PU is having any of the following impacts:

- ▶ Pain
- ▶ Loss of sleep
- ▶ Reduced mobility
- ▶ Diminished appetite
- ▶ Difficulty in daily activities
- ▶ Impaired social life.

Patients may have been advised to wear or use an offloading or pressure-redistributing device. If so, asking how they are managing with this will help appraise if they need education and/or support to improve adherence. It is worth checking if there are any practical measures that might help address any problems.

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