

# **WOUND CARE RESOURCE**

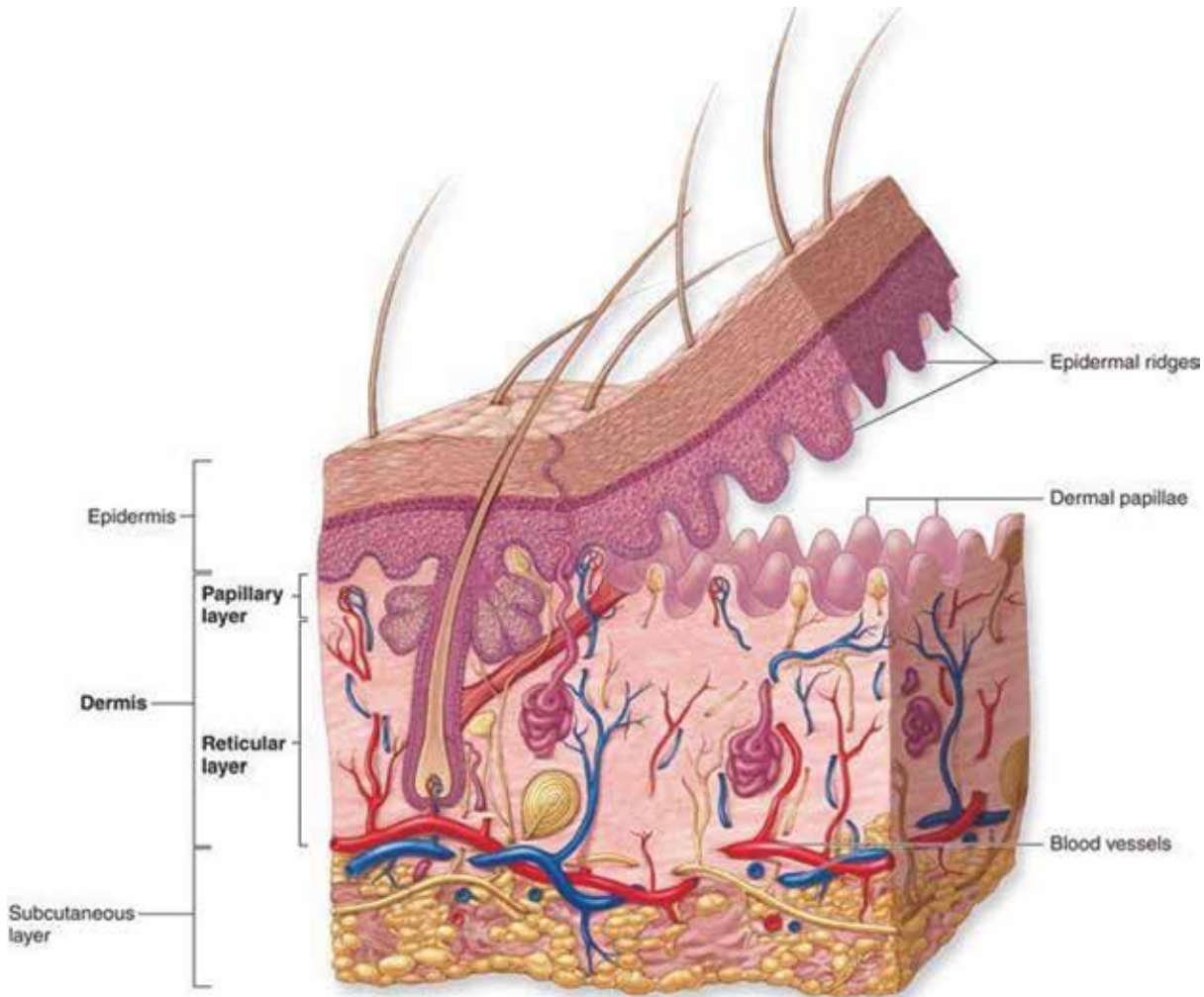
**CAP LONSDALE EDUCATION CENTRE**

# The Function of our skin, normal aging process and the importance of completing skin integrity assessments

Our skin provides several important functions, namely protection from external environmental influences, thermoregulation, electrolyte balance and sensation – pain, touch, heat and cold.

- Protection (Skin is an elastic covering. It protects you against exposure to dangerous things in the environment such as bacteria. It also repels water, minimises water loss from the body and protects underlying structures such as blood vessels, nerves and organs.)
- Elasticity firmness, frail skin loss of elasticity, reduction in collagen (muscle strength holds it together)
- Temperature regulation (Your skin helps you maintain a healthy body temperature in two ways: by changing the diameter of your blood vessels in your dermis
  - o to cool your body, blood vessels in the skin enlarge in diameter so that heat is lost through the skin
  - o When warmth is required, the blood vessel diameters become smaller and heat is conserved by perspiration (sweat glands cause water to be evaporated from the surface of your skin, cooling your body).
- Sensation (that perceive sensations such as touch, temperature changes, pressure and pain)
- Excretion (Your body excretes substances through the skin: sebum (skin oil), which helps to make your skin water repellent and maintain its smooth texture, and also defends your body against fungus and bacteria water, salts and several other substances, through the process of perspiration)
- Our skin's acid mantle is very important in preventing bacteria from attacking our skin and causing infection. Our skin is acidic, soap is alkaline) bacteria likes alkaline conditions skin cracks more chance of bacteria getting in
- Soap substitute important. Bed bathing soapy bowls need to rinse off with plain water.

The skin comprises three major layers – the dermis, the epidermis and the subcutaneous fatty layer (containing the major nerves and blood vessels). As we age, the layers of the skin and the junction between the epidermis and dermis become thin and flatten and circulation is reduced. Evidence suggests that fibroblasts (responsible for the production and deposition of collagen in tissues) also become senescent and function diminishes resulting in loss of connective tissue.



Older skin is also subject to drying due to co-morbidities, drinking less and reduced mobility generally. This renders the skin vulnerable to infection or wounding resulting from trauma, such as a knock or bump, or from sustained unrelieved pressure over bony prominences, shear and friction. Acute illness and high temperatures consequent to fevers and moisture from diaphoresis and incontinence can add to the vulnerability of aging skin. Therefore, it is vitally important to know the condition of your patient's skin and to monitor for skin changes

## Skin integrity assessment

To identify patients at risk for skin failure, assessment should be conducted on admission to the facility to identify any issues with the skin's integrity such as existing wounds (especially pressure injuries) or vulnerable pressure points, excoriation and rashes. Information gathered from the skin inspection and aspects of management should be clearly documented in the patient's notes and care plan. Inspection should include assessment of the skin's colour, temperature, texture, moisture, integrity and include the location of any skin breakdown or wounds. As a general guide, components of assessment of the patient's skin are outlined in the table below.

Assessment	Resources
Colour	What is normal for the patient? What colours can you see e.g. red, purple, unusual pigmentation of the lower limbs and gaiter regions (brownish) or blue/grey hues of distal limbs(lower limbs and feet)? Is there any bruising present? Or purpura?
Temperature	Does the skin feel cool to touch (possibly due to poor peripheral perfusion) or hot due to fever or infection
Texture	Does the skin feel dry or moist, papery, thin or leathery?
Moisture	Is moisture due to excess sweating, urine or leakage from a wound or drain? Is the skin becoming macerated (white appearance)? Is oedema present?
Integrity	Are there any broken areas? Presence of skin tears, blisters, wounds, pressure injuries or epidermal stripping due to adhesive tapes or dressings?
Location	If there is a failure in skin integrity identify and document the anatomical location i.e. sacrum, heels or toes, gaiter region of lower legs, dorsal/planter surface of foot, groin or under skin folds and so on.

**Assessment: Colour.**

**What to look for:** What is normal for the patient? What colours can you see e.g. red, purple, unusual pigmentation of the lower limbs and gaiter regions (brownish) or blue/grey hues of distal limbs (lower limbs and feet)? Is there any bruising present? Or purpura?

**Assessment: Temperature.**

**What to look for:** Does the skin feel cool to touch (possibly due to poor peripheral perfusion) or hot due to fever or infection?

**Assessment: Texture.**

**What to look for:** Does the skin feel dry or moist, papery, thin or leathery?

**Assessment: Moisture.**

**What to look for:** Is moisture due to excessive sweating, urine incontinence or exudate from a wound? Is the skin becoming macerated (white appearance)? Is oedema present?

**Assessment: Integrity.**

**What to look for:** Are there any broken areas? Presence of skin tears, blisters, wounds, pressure injuries or epidermal stripping due to adhesive tapes or dressings?

**Assessment: Location.**

**What to look for:** If there is a failure in skin integrity identify and document the anatomical location i.e. sacrum, heels or toes, gaiter region of lower legs, dorsal/plantar surface of foot, groin or under skin folds and so on.

**Maintaining skin integrity**

Skin integrity assessment is an essential part of nursing care and should be conducted on admission and at least daily depending on the individual's circumstances. High risk patients require skin inspection at least once per shift in addition to admission to a facility. Just as nurses apply the six rights of medication administration each time they administer a medication to reduce the risk of errors, maintaining skin integrity should be given that same due process. By applying the following skin care basics patients are protected from further injury and the risk of hospital-acquired conditions, such as infection, skin tears and pressure injuries, is reduced. Skin basics include – assessment, movement, skin care, pressure relief, nutrition and hydration, education and communication (documentation, referral and clinical handover).

In addition to the skin integrity assessment discussed above, maintaining skin integrity requires a holistic approach. Mobility is important for circulation and in reducing prolonged exposure to external forces such as pressure, shear and friction implicated in pressure injury formation. It is important to ensure interventions are in place to limit the person's exposure to such forces if they have reduced mobility or protective sensation (for example diabetic neuropathy), are at nutritional risk or malnourished, acutely unwell or have any condition which decreases their tissue tolerance to pressure.

Ask your patient to demonstrate they can independently move their arms and legs and reposition themselves in bed. If the patient is unable to do this easily they are at risk for skin failure and pressure injuries. Pressure relieving surfaces such as active pressure relieving mattresses and pressure redistributing seating cushions may be required. Other devices might include monkey bars and/or side bars to assist a person to reposition in bed. Always use proper transfer equipment to reduce shear and friction e.g. a slide sheet (Slippery Sam) and hoist. If your patient is sitting out of bed educate them to reposition themselves regularly to relieve pressure to the buttocks.

Ensuring skin is cleansed, dried thoroughly and moisturised daily will reduce the risk of excoriation and help to keep the skin in peak condition. Using non-soap cleansers will help to protect the acid mantle and prevent the skin from drying out, while moisturisers provide hydration to the skin and help to keep it in good condition. The pH of skin is around 5.5, while soaps are generally alkaline having a pH of around 8 or 9.3. An alkaline pH creates an environment for opportunistic bacterial growth which may lead to infection, especially if the skin is compromised.

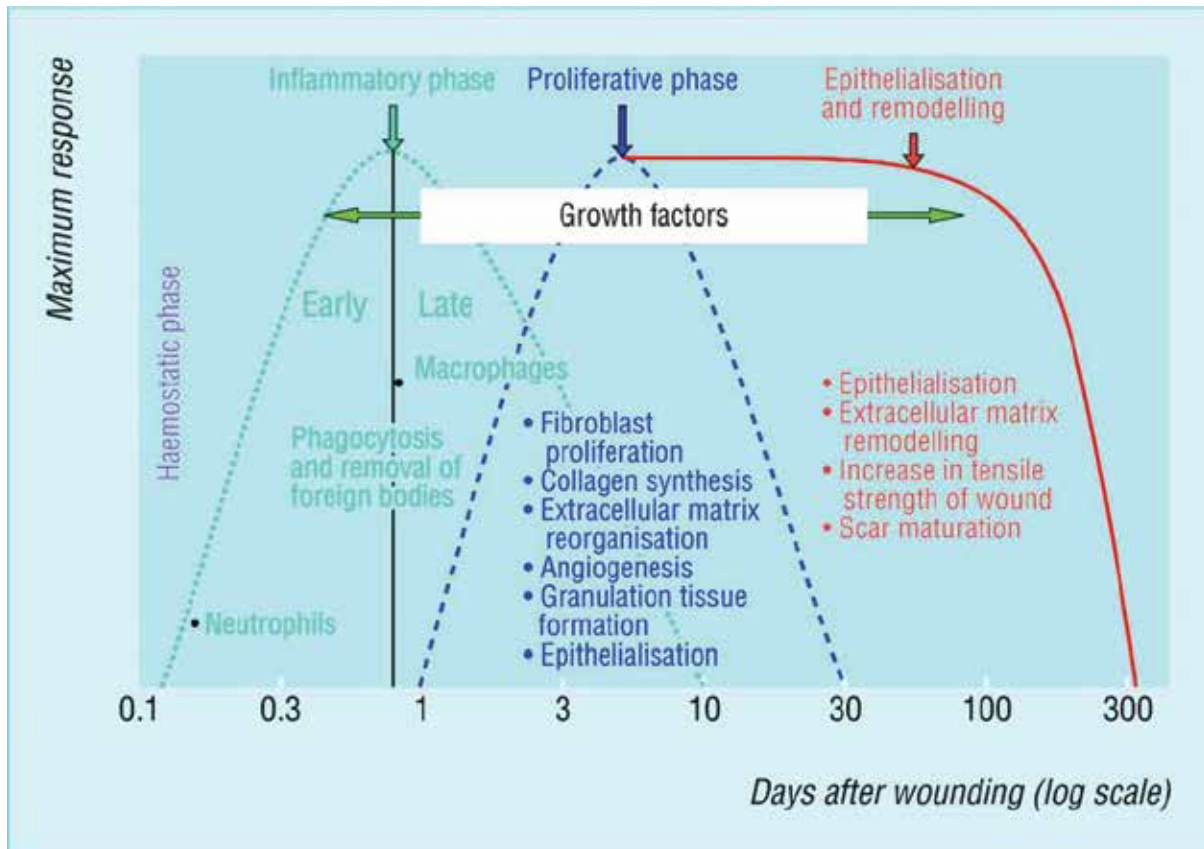
If your patient is incontinent ensure their continence aid is checked and changed regularly and the exposed skin cleansed, dried and moisturised each change to reduce the risk of moisture lesions and painful excoriation. For patients with a high BMI be sure to pay particular attention to creases and skin folds. Be mindful of the pressure used to cleanse frail skin as this can cause skin tears and/or bruising if too much force is applied.

People come to hospital because they are unwell. In addition to the normal daily nutritional requirements, extra calories and protein are often necessary to assist their recovery and healing from surgery or their wounds. Monitor your patient's oral intake and if in doubt place a referral to the dietician for a proper nutritional assessment and recommendation for oral nutritional supplementation (if required). Discuss your concerns with the patient's doctor; extra fluids might be required. High wound exudate can lead to dehydration and loss of albumin and other electrolytes. Similarly, high output stomas, and prolonged nausea, vomiting and diarrhoea, if excessive, will lead to dehydration, placing the person at risk for compromised skin integrity and reduce their tissue tolerance to pressure.

Most importantly it is essential to involve patients and their family or care givers in their care through education. Educating the patient on the basics of skin care will help them to look after their skin once discharged and arm family members and/or carers with the knowledge of what to look for, how best to manage skin failure and when to seek medical help.

Lastly, documentation is a key component to good communication. Document your findings and interventions in the patient's health medical record and communicate these to your team members including nurses, doctors and allied health staff. Referral to the dietician, physiotherapist and occupational therapist will provide interdisciplinary management for the patient to ensure the best possible outcome for the patient. Remember an acutely ill patient with a wound or a post-operative surgical patient with reduced mobility, or ongoing nausea and vomiting, or experiencing a delirium is at a high risk for skin failure. If appropriate interventions are not implemented and monitored on a regular basis, and outcomes clearly documented and communicated, patients are at risk of further injury, often leading to increased length of hospital stay or unplanned readmission post discharge.

# STAGES OF WOUND HEALING



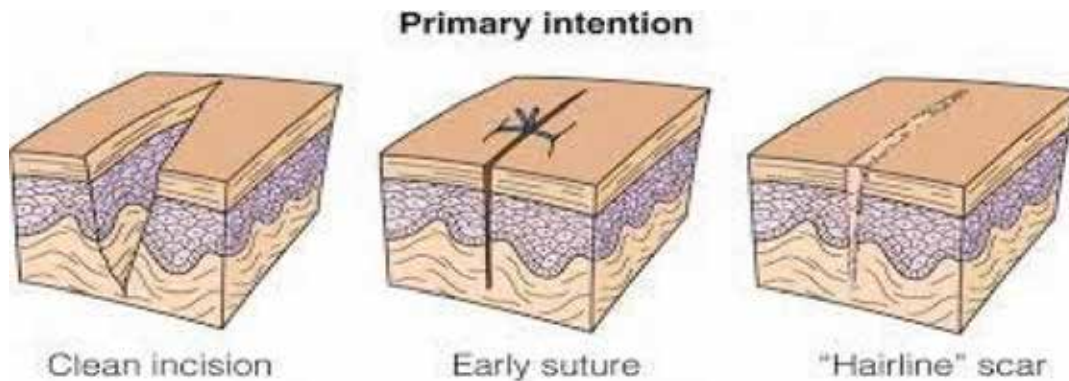
**The inflammatory phase:** is the body's natural response to injury. After initial wounding, the blood vessels in the wound bed contract and a clot is formed. Once haemostasis has been achieved, blood vessels then dilate to allow essential cells; antibodies, white blood cells, growth factors, enzymes and nutrients to reach the wounded area. This leads to a rise in exudate levels so the surrounding skin needs to be monitored for signs of maceration. It is at this stage that the characteristic signs of inflammation can be seen; erythema, heat, oedema, pain and functional disturbance. The predominant cells at work here are the phagocytic cells; 'neutrophils and macrophages'; mounting a host response and autolysing any devitalised 'necrotic / sloughy' tissue.

**During proliferation:** the wound is 'rebuilt' with new granulation tissue which is comprised of collagen and extracellular matrix and into which a new network of blood vessels develops, a process known as 'angiogenesis'. Healthy granulation tissue is dependent upon the fibroblast receiving sufficient levels of oxygen and nutrients supplied by the blood vessels. Healthy granulation tissue is granular and uneven in texture; it does not bleed easily and is pink / red in colour. The colour and condition of the granulation tissue is often an indicator of how the wound is healing. Dark granulation tissue can be indicative of poor perfusion, ischaemia and / or infection. Epithelial cells finally resurface the wound, a process known as 'epithelialisation'.

**Maturation/Remodelling:** is the final phase and occurs once the wound has closed. This phase involves remodelling of collagen from type III to type I. Cellular activity reduces and the number of blood vessels in the wounded area regress and decrease.

# TYPES OF WOUND HEALING

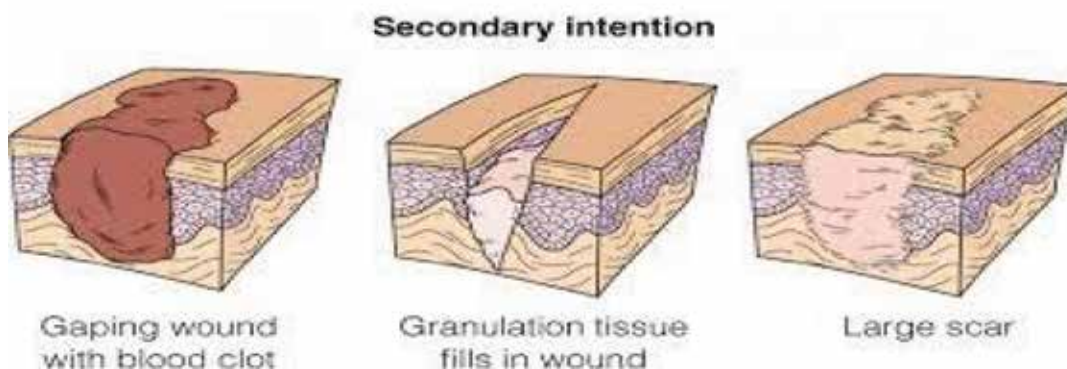
## Primary-intention healing:



Wound healing by primary intention is typical for non-complicated surgical wounds.

Wound edges are approximated and kept together with sutures or staples and healing occurs by wound epithelialisation and connective tissue deposition. These wounds usually heal quickly provided there is no infection.

## Secondary-intention healing:



## Primary-intention healing:

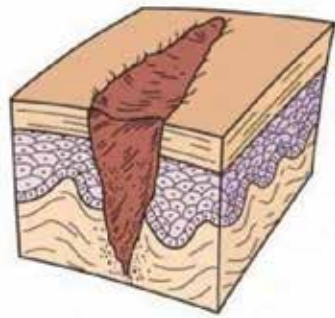
Wound healing by secondary intention is typical for chronic wounds such as venous leg injuries. The wound is left open and healing occurs by granulation tissue formation, contraction of the wound edges and subsequently epithelialisation.

These wounds show delayed healing due to the volume of connective tissue required to fill the defect. Since there is no epidermal barrier, the risk of an infection is significantly higher in these wounds.

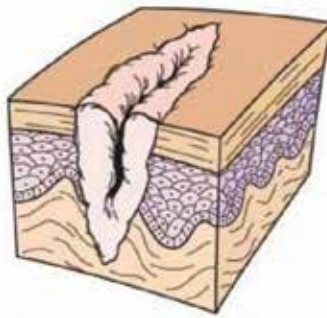


Tertiary-Intention: Delayed primary closure or secondary suture:

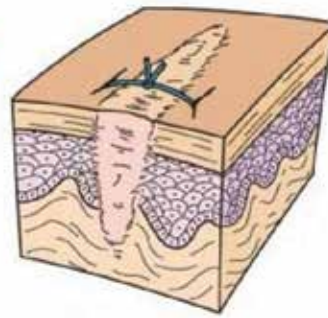
### Tertiary intention



Contaminated wound



Granulation tissue



Closure with wide scar

The wound is initially cleaned, debrided and observed, typically 4 or 5 days before closure.

The wound is purposely left open

Examples: healing of wounds by use of tissue grafts.

# Pressure Injury

## INTRODUCTION

A pressure injury is localized damage to the skin and/or underlying soft tissue usually over a bony prominence or related to a medical or another device. The injury can present as intact skin or an open ulcer and may be painful. The injury occurs as a result of intense and/or prolonged pressure or pressure in combination with shear. The tolerance of soft tissue for pressure and shear may also be affected by microclimate, nutrition, perfusion, co-morbidities and condition of the soft tissue.

- Prevention of pressure injury is of utmost importance due to the significant impact on quality of life and health care resources. Most pressure injury can be prevented.
- A pressure injury is any lesion caused by unrelieved pressure, friction and/or shear that results in damage to the skin and underlying tissue.
- Tissues overlying bony prominences are at highest risk of pressure damage especially tissues overlying the sacrum, coccyx, heel, ischial tuberosity, malleolus, greater trochanter, occiput, scapula, vertebrae, knee and elbow. Previous surgical sites/scars are also at risk for pressure injury development.
- Consider all bed- or chair-bound patients, or those whose ability to independently reposition is impaired, to be at risk for pressure injury's. Key predisposing risk factors include:

**Intrinsic Factors:** Previous history of pressure injury, malnutrition, dehydration, excessive perspiration/wound exudate, urinary/faecal incontinence, decreased sensory perception, altered mental status, decreased mobility, premature infants, age >70 years, altered blood pressure, impaired circulation, increased temperature (either internal to the patient or at the patient/surface interface), gender, body build, and co-existing health conditions/acute illness (malignancy, diabetes, stroke, pneumonia, heart failure, sepsis, hypotension, renal failure, anaemia, immune compromised)

**Extrinsic Factors:** Treatment protocols, failure to recognize risk, patient handling techniques, use of restraints, hygiene, medications, emotional stress, and smoking.

## **ASSESSMENT AND DIAGNOSIS**

- Complete History
- Cause, duration, history, and treatment of previous and current pressure injury's
- Co-existing health conditions
- Medications especially those that may impair healing (e.g. systemic corticosteroids, chemotherapeutic agents and nonsteroidal anti-inflammatories) or cause sedation (e.g. opioids, benzodiazepines, muscle relaxants, hypnotics)
- Positioning, posture, and related equipment
- Patient's ability and motivation to comprehend and adhere to the treatment program including cognition, learning ability and depression
- Available resources including caregiver support and finances
- Pain (refer to recommendations for care of wound bed and recommendations for malignant wounds)
- Impact of patient's quality of life

### **Nutritional Assessment**

- Measure height, monitor weight at regularly scheduled intervals (weekly if possible in acute care setting, monthly in long term care)
- Monitor fluid and nutrient intake (% of meals eaten, calorie counts, etc.)

### **Nutritional Assessment**

(Often you will refer to GP first and then the GP can refer to Dietitian if they feel it is necessary)

- Patient has stage III or stage IV pressure injury(s)
- Patient has stage I or stage II pressure injury(s) and a history of weight loss greater than 10%. To calculate:  $\frac{\text{usual body weight} - \text{current body weight}}{\text{usual body weight}} \times 100 = \% \text{weight loss}$
- Patient is at high risk for pressure injury development and nutritional concerns are present
- Complete nutritional assessment by a Registered Dietitian includes biochemical assessment, diet/intake history, weight history, physical exam, nutritional diagnosis, estimation of nutrient requirements, nutrition planning, and on-going evaluation.

### **Investigations**

Should be based on patient assessment, identified risk factors, severity of pressure injury's and may include any of the following:

Physical Exam

Blood Pressure

Bloods sent to Lab, urine analysis if indicated and or wound culture (refer to recommendations on care of wound bed)

X-Ray (osteomyelitis suspected)

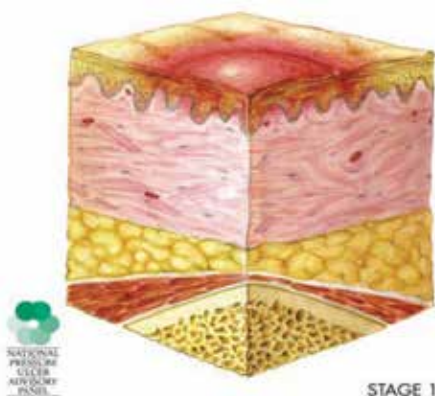
## Risk Assessment

- Complete a risk assessment using one of the 3 risk assessment tools Braden, Norton or Waterlow depending on your facility for predicting Pressure Injury Risk within 24 hours of admission.
- Reassess risk using either the facility risk assessment tool at regularly scheduled intervals. Frequency of re-assessment dependent on patient's condition, health care setting, and facility policy (refer to Appendix A for a copy of the Norton risk assessment tool)
- Risk should be interpreted in the context of the full patient profile (age, acuity of illness, co-morbidity, medications, psychosocial well-being, surface support, posture) and the patient's goals
- Risk assessments should be documented and made accessible to all members of the health care team
- A score of 14 or less indicates a resident at risk. Assess residents score accordingly under each heading. The lower the total, the higher the risk. The resident will be assessed on admission (if need indicated), and then if needed but at least six monthly or the resident's condition changes. (Appendix A)

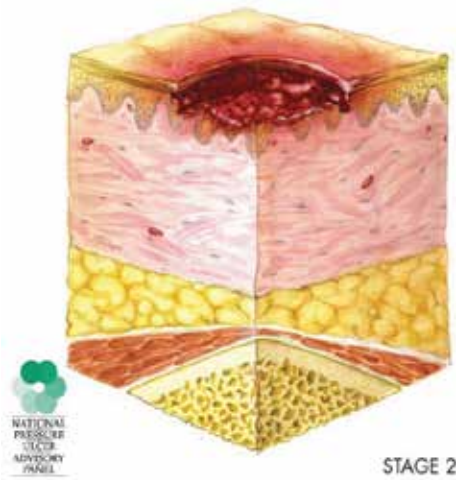
## Wound Assessment

Stage injury according to the National Pressure Injury Advisory Panel (NPUAP) injury severity guidelines, 2016. Staging can only occur after necrotic tissue has been removed allowing complete visualization of the injury bed.

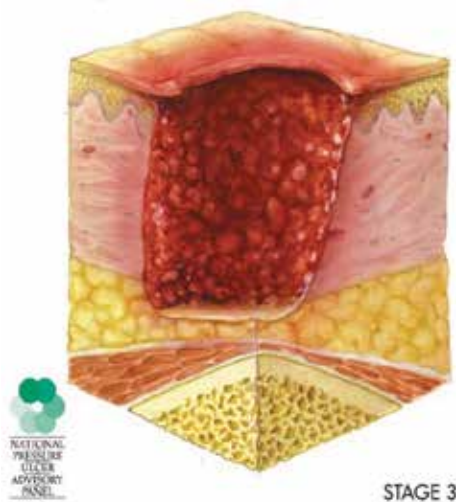
**Category/Stage I:** Non-blanchable Erythema Intact skin with non-blanchable redness of a localized area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its colour may differ from the surrounding area. The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue. Category/Stage I may be difficult to detect in individuals with dark skin tones. May indicate "at risk" individuals (a heralding sign of risk).



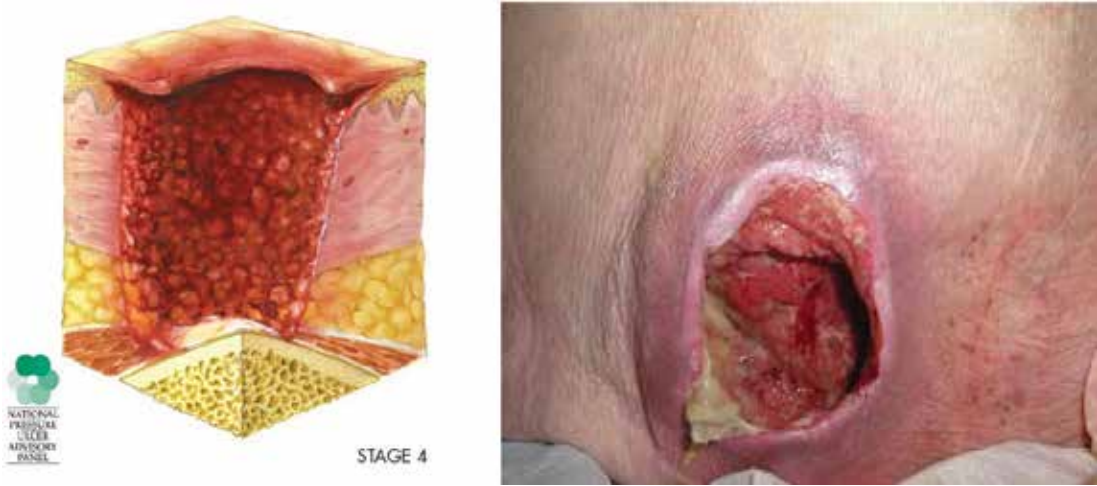
**Category/Stage II:** Partial Thickness Skin Loss Partial thickness loss of dermis presenting as a shallow open injury with a red pink wound bed, without slough. May also present as an intact or open/ruptured serum filled blister. Presents as a shiny or dry shallow injury without slough or bruising. \* This Category/Stage should not be used to describe skin tears, tape burns, perineal dermatitis, maceration or excoriation. \*Bruising indicates suspected deep tissue injury.



**Category/Stage III:** Full Thickness Skin Loss 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. May include undermining and tunnelling. The depth of a Category/Stage III pressure injury varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue and Category/Stage III injuries can be shallow. In contrast, areas of significant adiposity can develop extremely deep Category/Stage III pressure injury's. Bone/tendon is not visible or directly palpable.



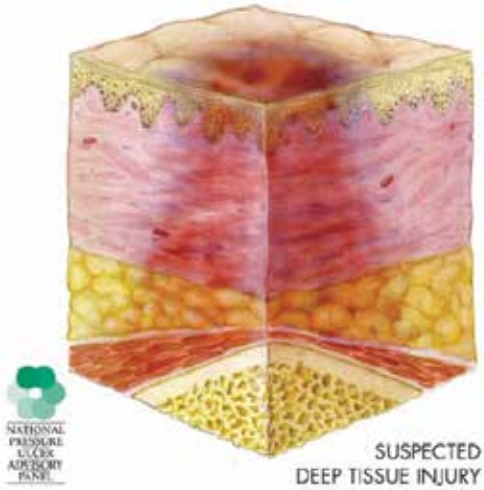
**Category/Stage IV:** Full Thickness Tissue Loss Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed. Often include undermining and tunnelling. The depth of a Category/Stage IV pressure injury varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue and these injuries can be shallow. Category/Stage IV injuries can extend into muscle and/or supporting structures (e.g., fascia, tendon or joint capsule) making osteomyelitis possible. Exposed bone/tendon is visible or directly palpable.



**Unstageable:** Depth Unknown Full thickness tissue loss in which the base of the injury is covered by slough (yellow, tan, grey, green or brown) and/or eschar (tan, brown or black) in the wound bed. Until enough slough and/or eschar is removed to expose the base of the wound, the true depth, and therefore Category/Stage, cannot be determined. Stable (dry, adherent, intact without erythema or fluctuance) eschar on the heels serves as 'the body's natural (biological) cover' and should not be removed.



**Suspected Deep Tissue Injury:** Depth Unknown Purple or maroon localized area of discoloured intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue. Deep tissue injury may be difficult to detect in individuals with dark skin tones. Evolution may include a thin blister over a dark wound bed. The wound may further evolve and become covered by thin eschar. Evolution may be rapid exposing additional layers of tissue even with optimal treatment



## PREVENTION AND TREATMENT

The goal of treatment is to promote healing, prevent complications, prevent deterioration, and minimize harmful effects to both the wound and the overall condition of the patient.

### Treat the Cause.

The risks identified by the Risk assessment tool should be used as basis for care planning. The care plan must be based on the goals of care and overall condition of the patient.

### Preventative Skin Care

- Inspect skin at least daily particularly over bony prominences
- Cleanse skin at time of soiling and at routine intervals
- Use mild cleansing agents with a pH similar to skin (i.e. 4-7), avoid bar soap
- Avoid hot water and limit frequency of baths
- Apply moisturizers to skin at least daily
- For sensitive skin, avoid all products containing alcohol, perfumes, lanolin and other potential sensitizers to avoid sensitivity or allergic reactions
- Minimize environmental factors leading to skin drying when possible (low humidity, exposure to cold). Heat lamps should be avoided.
- Do not massage red or bony prominences.

### Turning and Positioning

- Evaluate bed mobility and develop a turning schedule based on identified risk. Individualized positioning regime and repositioning schedule must be documented and displayed.
- **If the patient is able to make large body movements easily and frequently:** Monitor bed mobility and ensure adequate turning every 3-4 hours
- **If the patient is able to make small body shifts but is unable to make large body movements:** Reposition every 2 hours. Use positioning devices to position the patient in a 30-degree laterally inclined position when repositioned to either side Avoid 90° side-lying position.
- **If the patient is unable to make any independent movement:** Turn every 2 hours or more frequently if indicated. May require **therapeutic pressure management mattress**. Please note that a patient on a therapeutic pressure management mattress should still be turned and repositioned regularly as per individualized positioning regime.
- Use positioning devices to prevent contact between bony prominences
- Completely relieve heel pressure when in bed. Support length of legs with a pillow and allow heels to drop off pillow. Alternatively, consult Occupational Therapy or Physiotherapy for heel positioning devices. Monitor to prevent foot drop.



**For patients restricted to chairs:**

- Consider postural alignment, distribution of weight, balance, stability, and pressure reduction capabilities of all seating surfaces used by patient (wheelchair, recliner, dining chair, etc.)
- Avoid positioning the wheelchair seated patient directly on a pressure injury
- Teach patient to shift weight every 15 minutes. The “forward lean” (i.e. bringing one’s chest towards one’s knees/lap) is the most effective and easiest method of weight shift.
- If the patient is unable to perform weight shifts, reposition q 1 hour. If this is not possible, return the patient to bed.
- Ensure the wheelchair cushion is positioned and functioning properly
- Consult Occupational Therapy or Physiotherapy for seating assessment (if you have access to one and can easily refer, can be difficult and expensive in aged care to access OT and physio’s).

**Minimize Friction and Shear:**

- Maintain head of the bed at the lowest elevation consistent with medical conditions and restrictions. A 30 degree elevation or lower is recommended. If the head of the bed is elevated higher than 30 degrees, flex knee gatch slightly to prevent sliding and closely monitor skin on sacrum. As well, after elevating the head of the bed, briefly lifting the trunk away from the bed surface releases skin tension and reduces shearing forces.
- Use transfer techniques that decrease shear when indicated (i.e. nylon sliders, transfer board, trapeze, mechanical lifts). Avoid leaving slings under the patient
- Keep linens flat, free from stray objects
- Use turning sheets, do not drag the patient when repositioning
- Protect elbows and heels if being exposed to friction (i.e. transparent films, socks, pillows, foam blocks, heel booties, etc.).

**Manage Moisture**

- Use commercial moisture barriers, barrier films, transparent dressings
- Assess and treat urinary and faecal incontinence
- If patient has diarrhoea, identify and treat the cause (i.e. C. difficile)
- Use absorbent pads or briefs that wick and hold moisture away from the skin
- Avoid use of plastic sheets
- Wear breathable clothing

## **Maximize Nutrition**

- Consult dietitian as indicated
- Provide adequate nutrients to promote wound healing
- Calories 30-35 kcal/kg/day
- Protein 1.2-1.5 g/kg/day
- Fluid 30-35 ml/kg/day or 1 ml/kcal/day
- Micronutrients per Recommended Dietary Allowance (RDA) or Dietary Reference Intake)
- Ensure balanced nutrition with consumption of foods from all food groups
- A patient who consistently consumes less than 75% of his/her meals may benefit from an oral nutritional supplement such as Ensure or fortisip
- Offer fluids when turning, repositioning, administering medications, etc.
- Consider the need for a multivitamin with minerals
- Additional micronutrients such as zinc and vitamin C may be considered with clinical suspicion of deficiency or inadequate intake of foods rich in these micronutrients
- Identify and address possible causes of inadequate intake (e.g. ensure teeth are in good condition and fit properly; consult Speech Language Pathologist if difficulties swallowing; provide assistance with meals as needed, etc.)

## **Enhance Mobility/Activity**

- Consult Physiotherapist, Occupational Therapist, Recreational Therapist, Activity Worker as indicated
- Encourage walking, activity as indicated to prevent further deconditioning.

## **Treat Underlying Medical Conditions**

- Wherever possible, treat specific medical conditions that may be causing or contributing to wound development or impeding wound healing

## **Ensure Quality Education and Communication**

- Educational programs for the prevention of pressure injuries should be structured, organized, and comprehensive and directed at all levels of health care providers.
- Educational programs for the prevention of pressure injuries should include information on the following items:
  - The etiology and risk factors predisposing to pressure injury development
  - The Risk assessment tools such as Braden, Norton and Waterflow, and their relevance to planning care
  - Skin assessment
  - Staging of pressure injury's
  - Selection and/or use of support surfaces
  - Development and implementation of an individualized skin care program

- Demonstration of positioning/transferring techniques to decrease risk of tissue breakdown
- Instruction on accurate documentation of pertinent data.

Patients moving between care settings should have the following information provided:

- Risk factors for pressure injury development
- Skin condition prior to discharge
- Type of bed/mattress and seating the patient requires
- History of injury's, previous treatments and dressings used
- Stage, site, and size of existing injury's
- Type and frequency of current dressing
- Any sensitivities or allergies to dressing products
- Need for on-going nutritional support

### **Treat Patient Concerns**

- Manage pain (it is not normal for someone to be in pain)
- Provide emotional support, assess and consider financial situation.
- Ensure patient is actively involved in developing care plan.
- Provide patient and family education regarding:
  - Etiology of pressure injury's
  - How to inspect skin
  - Protection of skin
  - Proper, safe cleansing techniques and agents
  - Reduction of pressure injury risk
  - Role of nutrition in pressure injury prevention
  - Proper positioning techniques, proper use of positioning devices
  - Skin and other health status changes to be reported to health care professionals

## **Treat the Wound**

- Refer to recommendations on care of wound bed
- Assess and manage complications as indicated (e.g. infection, pain)
- If no healing evidenced within 2-4 weeks with optimal patient and wound management or if wound deteriorates, modify treatment plan and/or consult an advanced wound clinician
- Surgical repair of pressure injury's may be indicated for patients with complex, stage III pressure injury's (i.e. undermining, tracts) or stage IV pressure injury's unresponsive to optimal care. The decision to refer a patient for surgical evaluation should be based on the patient's overall burden of illness and prognosis, care goals, quality of life, and the expected functional outcomes.
- Electrical stimulation of chronic pressure injury's that are not responsive to conventional therapy has been shown to be effective. Other adjuvant therapies that may be effective include:
  - Negative pressure therapy and normothermic therapies
  - Therapeutic ultrasound
  - Ultraviolet light
  - Pulsed electromagnetic fields
  - Growth factors and skin equivalents.

# SKIN TEARS

## What are skin tears?

Skin tears are traumatic injuries, which can result in partial or full separation of the outer layers of the skin. These tears may occur due to shearing and friction forces or a blunt trauma, causing the epidermis to separate from the dermis (partial thickness wound) or both the epidermis and the dermis to separate from the underlying structures (full thickness wound)

Skin tears are perceived by some to be minor injuries. However, they can be significant and complex wounds; complications such as infection or a compromised vascular status can increase morbidity or mortality risks.

## Where do skin tears occur?

Skin tears can occur on any anatomical location. In the elderly, they are often sustained on the extremities such as the upper and lower limb and on the dorsal aspect of the hands.

## Which patients are at risk?

Patients who are elderly or dependent on others have a higher risk of sustaining skin tears. Skin can become very fragile with age and even the simplest bump or knock can cause tissue damage. In addition, patients who are very young and have immature skin or those who are critically ill and/or have multiple risk factors are also more likely to develop skin tears.

What are the risk factors for skin tears?

Skin tears are associated with falls, blunt trauma, handling and equipment injuries. A number of risk factors have been reported, including:

- Age and gender
- History of previous skin tears
- Dry, fragile skin n Medications that thin the skin such as steroids
- Echymoses (bruising / discolouration of the skin caused by leakage of blood into the subcutaneous tissue as a result of trauma to the underlying blood vessels)
- Impaired mobility or vision
- Poor nutrition and hydration
- Cognitive or sensory impairment
- Co-morbidities that compromise vascularity and skin status, including chronic heart disease, renal failure, cerebral vascular accident
- Dependence on others for showering, dressing or transferring.

## **How should skin tears be assessed?**

The initial assessment should include a comprehensive assessment of the patient and his/her wound. It is important to determine the patient's age and medical history, any underlying comorbidities, general health status and potential for wound healing.

Assessment must establish the cause of injury: when, where and how it occurred.

In addition, a full assessment of the wound is required to determine the following:

- Anatomical location and duration of skin tear
- Dimensions (length, width depth)
- Wound bed characteristics and percentage of viable/ non-viable tissue
- Type and amount of exudate
- Presence of bleeding or haematoma
- Degree of flap necrosis
- Integrity of surrounding skin
- Signs and symptoms of infection
- Associated pain.

The skin tear should then be categorised and all information be carefully documented using the STAR classification tool. This system comprises three categories and two sub-categories of skin tears as outlined in (Appendix 2)

### **Key principles for management include:**

- Assess and document the wound
- Classify using the STAR Classification System
- Manage using an appropriate dressing
- Prevent further trauma.

## **How to manage skin tears**

The main aims of management are to preserve the skin flap and protect the surrounding tissue, reapproximate the edges of the wound without undue stretching, and reduce the risk of infection and further injury. The principles of moist wound healing are promoted in the following general guidelines:

## **Control bleeding (haemostasis)**

- Apply pressure and elevate the limb if appropriate.

## **Clean the wound**

- Use warm saline or water to irrigate the wound and remove any residual haematoma or debris. Gently pat dry the surrounding skin to avoid further injury.

## **Approximate the skin flap**

- If the skin flap is viable, gently ease the flap back into place using a dampened cotton tip or gloved finger, tweezers or a silicone strip and use the flap as a 'dressing' if viable
- If the flap is difficult to align, consider using a moistened non-woven swab. Apply for 5-10 minutes to rehydrate the flap
- Categorise the skin tear and perform a wound assessment. Document findings
- Apply a skin barrier product as appropriate to protect the surrounding skin.

## **Apply the dressing**

- Select an appropriate dressing. If considering the use of adhesive wound closure strips, allow space between each strip to facilitate drainage and avoid tension over flexure sites (this could compromise vascularity)
- Tissue glues may be used to secure the flap. Sutures and staples are generally not recommended due to the fragility of the skin. However, they may be required in the treatment of deep, full-thickness lacerations
- If possible, leave the dressing in place for several days to avoid disturbing the flap
- If an opaque dressing is used, mark with an arrow to indicate the preferred direction of removal and record in the notes.

## **Review and reassess**

- At each dressing change, gently lift and remove the dressing, working away from the attached skin flap, as indicated by the arrow drawn on the dressing. Consider using saline soaks or silicone-based adhesive removers to minimise trauma to the peri-wound skin
- When cleaning, the wound take care not to disrupt the skin flap
- Monitor for changes in the wound and maintenance of skin integrity. Where the skin or flap is pale and dusky/darkened, it is important to reassess within 24-48 hours. Debridement is usually required on non-viable flaps
- Observe the wound for signs and symptoms of infection (especially in patients with diabetes), including increased pain and exudate, erythema, heat, oedema and malodour
- Implement preventative skin care interventions to avoid further skin tears.

## (Box 2) Properties of the ideal dressing for skin tear application based on

- Easy to apply
- Provides a protective anti-shear barrier
- Optimises the physiological healing environment (e.g. moisture and bacterial balance, temperature and pH maintenance)
- Is flexible and moulds to contours
- Provides secure, but not aggressive retention
- Affords extended wear time
- Does not cause trauma on removal
- Optimises quality of life
- Is cost-effective

### **Dressing selection**

A wide variety of dressings are used in the treatment of skin tears. It is important to select a dressing based on the assessment outcomes and goals of care (see Box 2). Calcium alginates may assist with haemostasis. Soft silicone or silicone impregnated dressings facilitate flap security and non-traumatic removal. Foam or fibre dressings assist with exudate management. Antimicrobial dressings aid infection control. Adhesive dressings are best avoided when the peri-wound skin is fragile. Tubular or roller bandages can be used to secure dressings or provide additional protection.

### ***Special considerations***

#### **Oedema**

If the skin tear occurs over an area where there is oedema, exudate levels will be increased. It is important to consider the cause of oedema and manage appropriately. Failure to respond to first line treatment may indicate further interventions and referral to a specialist is required.

#### **Pain**

Skin tears can be painful as trauma can affect the superficial nerve endings in and around the wound. It is important, therefore, to assess the degree and nature of pain and offer analgesia if required. Pain measurement tools, such as scales 0-10 (0 = no pain, 10 = worst pain possible) and the Wong baker faces can be used to grade a patient's pain. This can help to identify the most appropriate treatment strategy (Box 3).



### (Box 3) Recommendations for managing wound-related pain

- Involve and empower patients to optimise pain management
- Evaluate each patient's need for pharmacological and non-pharmacological strategies to minimise wound-related pain
- Treat local factors such as inflammation, trauma, pressure and maceration that may cause wound-related pain and delay healing
- Choose dressings that minimise trauma and pain during application and removal. Consider wear time, moisture balance and healing potential
- Treat infections and be aware that an increase in pain may be indicative of infection
- Use warm cleansing solution to irrigate the wound, carefully remove dressings and any residue and if necessary use a silicone-based adhesive remover
- Consider 'time out' sessions and allow patients to remove their own dressing as appropriate
- Minimise the frequency of dressing changes when possible

#### **Infection**

Pain may also be an indication of localised infection. Infection may be managed using topical antimicrobials or systemic antibiotics to help prevent the onset of serious complications such as cellulitis or generalised sepsis.

#### **When is, referral indicated?**

Referral is indicated when the skin tear is extensive or associated with a full thickness skin injury, significant bleeding or haematoma formation. Such skin tears may require surgical review and intervention to repair the injury. An inter professional and collaborative approach to management is required to optimise healing outcomes for the individual.

## **How to prevent skin tears**

Most skin tears occur during routine patient care activities. Any management plan should therefore include strategies to prevent skin tears from developing and/or prevent further trauma that can be adopted by healthcare professionals and assistants who care for vulnerable patients on a daily basis. In addition, patients and carers should be encouraged to be involved in their care and provided with the necessary education to prevent skin tears.

### **Key strategies include:**

## **How to prevent skin tears**

It is important to determine the patient's sensory perception and visual impairment and to ensure a safe home or care environment.

- Ensure adequate lighting and position small furniture (night table, chairs) to avoid unnecessary bumps or knocks. Remove rugs and excessive furniture
- Upholster or pad sharp borders of furniture or bed surroundings with padding and soft material
- Use appropriate aids when transferring patients and adopt good manual handling techniques according to local protocols
- Never use a bed sheet to move the patient as this can contribute to damage by causing a dragging effect on the skin. Always use a lifting device (hoist) or slide sheet
- Where possible reduce, or eliminate pressure, shear and friction using pressure relieving devices and positioning techniques
- Encourage the patient to wear protective footwear and clothing to reduce the risk of injury.

## **Maintain skin integrity**

Good skin care is vital in maintaining skin integrity. It is important to keep the skin well hydrated by maintaining nutritional intake and adequate fluid intake.

**Patients with dry skin will benefit from the application of an appropriate pH-friendly moisturising cream twice a day. It is important to:**

- Avoid the use of soap, which can dry the skin. Use pH friendly cleansing solutions
- Apply emollients to moisturise and rehydrate dry skin
- Control moisture from incontinence or other sources
- Place, fix and remove peripheral access devices carefully
- Use a barrier film or cream to protect vulnerable skin
- Where adhesive products are used, consider a silicone-based adhesive remover to minimise trauma to fragile skin
- Protect fragile skin by covering with tubular or roller bandages, long sleeved clothing or skin protection devices.

## **Cost benefits of effective management**

The costs associated with skin tears can be significant. Delays in healing due to infection or other complications can add to the health cost burden. Comprehensive assessment and effective management of skin tears can facilitate faster healing and reduce the risk of complications. Evidence-based clinical decisions and dressing selection are important in helping to reduce the total number of dressing changes and time taken to apply the dressing. When patients are able to be managed within their existing care setting or at home, this can reduce the number of visits to accident and emergency departments or prevent hospitalisation.

