### Background
- Researching existing data on pressure ulcer prevalence rates in Canada, Woodbury and Houghton (2004) found that mean pressure ulcer prevalence was 25.1% in acute care, 29.9% in non-acute care settings and 15.1% in community care with an overall mean prevalence rate of 26% across all settings. This prevalence data illustrates the significance of the problem and the need for consistent, evidence-based care.
- In pediatrics settings, a US multi-site national study found that the overall prevalence of skin breakdown was 18%, of which 4% was attributed to pressure ulcers.
- Pressure ulcers occur most commonly over bony prominences but can occur anywhere on the body when pressure, shearing force and friction are present and can lead to the death of underlying tissues. Heels and the sacrum are the two most common sites for pressure ulcers.
- Animal model studies have shown that a constant external pressure of 2 hours or longer can result in irreversible tissue damage.
- Populations at increased risk for pressure ulcers include those who have problems with peripheral circulation, are malnourished (overweight or underweight), have motor or sensory deficits, are incontinent, are immune compromised, have diabetes, renal failure, sepsis and/or cardiovascular problems or have had lower extremity surgery, especially hip replacements.
- Changes that occur in clients who are critically ill, undergoing prolonged surgery or at the end of life, such as decreased skin perfusion, localized hypoxia and impaired removal of metabolic waste also increase the client’s risk for skin breakdown.
- Valid and reliable screening tools such as the Braden scale are helpful in assessing the client’s degree of risk for skin breakdown.
- Prevention and treatment of pressure ulcers involves reducing the impact of direct causes (pressure, shear and friction) and associated risk factors as well as treating the wound.
- Typically older adults develop pressure ulcers more often than younger adults.

### Definitions
- **Ankle Brachial Index (ABI)** – A numerical figure that indicates the amount of arterial blood flow to the extremity. It is determined using a handheld or automatic Doppler ultrasound to compare the ankle systolic pressure & the brachial systolic pressure with the ABI being a ratio of the two.

- **Aseptic Technique** – Technique used to limit the transfer of microorganisms from one person to another by minimizing the microbe count and preventing cross-contamination; includes sterile, no-touch and clean technique. The technique chosen is based on the clinical condition of the client, type and healability of the wound, invasiveness of the dressing procedure, goal of care and agency policy:
  - **Sterile Technique** – the use of sterile gloves, sterile field, sterile tray, sterile instruments, sterile solution and sterile dressings; only sterile gloved hands or instruments are used for direct contact with the wound.
  - **No-Touch Technique** – the use of clean gloves and a sterile field, sterile tray, sterile instruments, sterile solution and sterile dressings or dressings appropriately saved using no-touch technique; only sterile

### Practice Level
- Nurses in accordance with health authority / agency policy.
- Care of clients with pressure ulcers requires an interprofessional approach to provide comprehensive, evidence-based assessment and treatment. This clinical practice guideline focuses solely on the role of the nurse, as one member of the interprofessional team providing care to these clients.

### Indications / Contraindications
- For use with children and adults who have ulcers due to pressure possibly exacerbated by friction, shear and / or moisture.

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1 Clients are considered to be children if they are 18 years of age and under.
2 The term client includes recipients of care in the community (client), residential care (resident) and acute care (patient).

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<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autolytic debridement</td>
<td>The use of gels and moisture retentive dressings to soften or liquefy necrotic tissue.</td>
</tr>
<tr>
<td>“Bottoming Out”</td>
<td>A term used to indicate that the support surface is not providing sufficient pressure redistribution; can be assessed by placing a hand underneath the support surface to determine if bony prominences can be felt.</td>
</tr>
<tr>
<td>Capillary Refill</td>
<td>The length of time it takes for normal skin colour to resume after pressure applied to a finger or toe causes the area to blanche. Normal capillary refill is affected by age, gender and ambient temperature. Normal refill time is ≤ 2 seconds in children and less than or equal to 3 seconds in adults, however normal refill times increase with age and are usually higher in adult women than in men. Abnormal values may indicate dehydration or impaired peripheral perfusion.</td>
</tr>
<tr>
<td>Dysreflexia</td>
<td>A syndrome affecting persons with a spinal cord lesion above the mid-thoracic level; characterized by hypertension, bradycardia, severe headaches, convulsions as well as pallor below and flushing above the cord lesions. It is caused by simultaneous sympathetic and parasympathetic activity and may occur with bowel or bladder distension, pain or pressure ulcers.</td>
</tr>
<tr>
<td>End of life</td>
<td>A phase of life occurring when a person is living with an illness that will worsen and eventually cause death.</td>
</tr>
<tr>
<td>Erythema</td>
<td>Redness of the skin caused by dilation and congestion of the capillaries; often a sign of inflammation or infection.</td>
</tr>
<tr>
<td>Eschar, dry stable</td>
<td>Firm, dry necrotic tissue with an absence of drainage, edema, erythema, fluctuance or separation from the wound edge; may be black or brown in color and is attached to the wound edges and wound base.</td>
</tr>
<tr>
<td>Eschar, soft boggy</td>
<td>Soft boggy necrotic tissue which is black, brown or gray in colour; it may be firmly or loosely attached to the wound edges and wound base; fluctuance and drainage may be present.</td>
</tr>
<tr>
<td>Friction</td>
<td>A mechanical force that occurs with repeated movements over surfaces such as bedding; it results in the loss of the protective layers of skin when and reduces the amount of pressure needed to cause breakdown.</td>
</tr>
<tr>
<td>Full thickness wound</td>
<td>Full thickness injury involving loss of tissue into the subcutaneous layer, disrupting dermal blood vessels; it may include damage to underlying structures such as muscle, tendon or bone; these wound heals by granulation and scar formation.</td>
</tr>
<tr>
<td>Healable Wound</td>
<td>A wound that has an adequate blood supply, correctable risk factors and a cause, such as pressure that can be treated.</td>
</tr>
<tr>
<td>Irrigation (wound)</td>
<td>The instillation of fluid into a wound or cavity at 8 – 15 psi to remove slough and/or necrotic tissue.</td>
</tr>
<tr>
<td>Kennedy Terminal ulcer</td>
<td>A sub group of pressure ulcers that occurs most often in older adults with a terminal illness and may be a precursor to imminent death; these ulcers occur suddenly and first appear as an abrasion or blister but rapidly progresses to Stage 2, 3 or 4 ulcers. They are usually located on the sacrum or coccyx and are yellow or black in color with irregular edges. They are pear, butterfly or horse shoe shaped and are usually non healable and may not be preventable.</td>
</tr>
<tr>
<td>Knee catch</td>
<td>A bed that has an adjustable joint under the knees allowing the legs to be flexed and raised; the legs are fully supported by the bed when raised.</td>
</tr>
<tr>
<td>Maintenance Wound</td>
<td>A wound that is potentially healable but is impacted by client, wound and / or system barriers (lack of appropriate resources) that cannot be mitigated resulting in wound healing that is slow or stalled.</td>
</tr>
<tr>
<td>Mucosal pressure ulcer</td>
<td>A pressure ulcer found on a mucous membrane resulting from the use of medical devices such as endotracheal tubes. They may not be preventable and cannot be staged using the pressure ulcer staging system.</td>
</tr>
<tr>
<td>Non blanchable erythema</td>
<td>A reddened area that does not lose its redness when pressure is applied; the first sign that tissue damage has occurred and this reddened area will break down if pressure is not relieved over the area.</td>
</tr>
<tr>
<td>Non-healable Wound</td>
<td>Wound that are deemed non -healable due to inadequate blood supply, the inability to treat the cause (malignant wounds) or wound exacerbating factors that cannot be corrected.</td>
</tr>
<tr>
<td>Partial thickness wound</td>
<td>Partial thickness skin loss involving the epidermis and superficial dermis with no damage to the dermal blood vessels; it is superficial and presents as a shallow crater, abrasion or blister; healing occurs by epithelialization.</td>
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</tbody>
</table>

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**Pressure redistribution devices** – Device used to manage pressure loads in order to prevent pressure ulcers or promote healing; includes mattresses, integrated bed systems, overlays, seating cushions, pillows and seating cushion overlays and offloading devices such as foam supports and heel boots.

**Pressure ulcer** – Localized injury to the skin and/or underlying tissue usually over a bony prominence although it may occur under a medical device; occurs as a result of (1) high pressure of short or prolonged duration, (2) prolonged low pressure, or (3) pressure in combination with shear and/or friction. A number of contributing factors such as advanced age, co morbid conditions and mobility / sensory problems can increase the clients risk for pressure ulcers.

**Pressure ulcer staging** – Pressure ulcer staging, carried out during the initial assessment classifies the wound according to the extent of tissue damage. Includes stages 1 – 4 (See below). Staging also includes unstageable wounds and Suspected Deep Tissue injury (SDTI); healing ulcers should not be described by reversed staging, e.g. a stage 4 ulcer cannot be described as a stage 3 or 2 ulcer as it heals.

**Shear** – A mechanical force that moves underlying bony structures in an opposite direction to overlying tissue leading to tissue ischemia and ulceration or undermining / tunnelling and possibly deep sinus tracts beneath an ulcer.

**Slough** - Soft, moist necrotic tissue which is brown, tan, yellow or green in colour. May be thin or thick and the consistency may be fibrous, stringy or mucinous. May be firmly or loosely attached to the wound edges and base.

**Stage 1 Pressure Ulcer** – Intact skin with localized non-blanchable erythema over a bony prominence; the area may be painful, firm or soft and warmer or cooler when compared to surrounding tissue. Darkly pigmented skin may not show visible blanching, however the colour of the stage 1 ulcer will appear different than the colour of surrounding skin; indicates the client is at risk for further tissue damage if pressure is not relieved.

**Stage 2 Pressure Ulcer** – A partial thickness wound presenting as a shallow open ulcer with a red / pink wound bed, slough may be present but does not obscure the depth of tissue loss. May also present as an intact or open / ruptured serum-filled or sero-sanguineous filled blister.

**Stage 3 Pressure Ulcer** – A full thickness wound; subcutaneous tissue may be visible but bone, tendon and muscle are not exposed; may include undermining and/or sinus tracks and slough or eschar may be present but does not obscure the depth of tissue loss.

**Stage 4 Pressure Ulcer** – A full thickness wound with exposed bone, tendon or muscle and often includes undermining and/or sinus tracks; slough or eschar may be present on some parts of the wound bed but it does not obscure the depth of tissue loss.

**Suspected Deep Tissue Injury (SDTI)** – A localized purplish or maroon area of intact skin or a blood filled blister that occurs when underlying soft tissue is damaged from friction or shear. SDTI may start as an area that is painful, firm or mushy / boggy and warmer or cooler that surrounding tissue but can deteriorate into a thin blister over a dark wound bed or a wound covered thin eschar. Deterioration of SDTI may be rapid, exposing additional layers of tissue even with optimal treatment and may be difficult to detect in individuals with dark skin tones.

**Unstageable** – A wound in which the wound bed is covered by sufficient slough and / or eschar to preclude staging.

**Related Documents**

- Guideline Summary: Assessment and Treatment of Pressure Ulcers in Adults & Children
- Guideline: Assessment and Treatment of Lower Limb Ulcers (Venous, Arterial & Mixed) in Adults
- Guideline: Prevention of Skin Breakdown due to Pressure, Friction, Shear and Moisture in Adults & Children
- Guideline: Use of the Braden Scale for Predicting Pressure Ulcer Risk in Adults and Children
- Documentation Tool: Wound Assessment & Treatment Flow Sheet
- Algorithm: Braden Scale Interventions

**Assessment and Determination of Treatment Goal**

**Assessment**

1. **Client Concerns**
   a. Client's level of understanding about the wound, healability and risk factors.
   b. Impact of the wound on client's daily life and body image.
   c. Social and financial concerns and availability of support systems to address these concerns.
   d. Emotional, cognitive, behavioural or mental health concerns and availability of support systems to address these concerns.
   e. Quality of life issues that could impact treatment.
   f. Impact of client’s current environment on care.

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g. Client and family goals of care and preferences for treatment of the wound and risk factors.
h. Client and family ability and motivation to comprehend, participate in and adhere to the treatment plan.

2. Risk Factors for Wound Healability
   a. Impaired oxygenation status of the skin and underlying tissue, e.g. COPD, heart failure, anemia.
   b. Lifestyle factors such as smoking history (& motivation to quit) and substance use.
   c. Prematurity or advanced age.
   d. Medications that interfere with wound healing, e.g. NSAIDS, antineoplastics, systemic corticosteroids, anticoagulants, vasoressors.
   e. Medical conditions that increase the risk for skin breakdown, e.g. diabetes, neuromuscular conditions that impact mobility and sensation (SCI, MS, and CVA) peripheral vascular disease, decreased diastolic pressure, autoimmune diseases, renal disease, cerebral palsy, meningomyelocele and cancer or chronic illness in palliative / end of life stage.
   f. Iatrogenic conditions that increase risk for skin breakdown such as prolonged surgical procedures (4 hours or longer), radiation therapy and peri operative analgesia.
   g. Impaired nutritional status:
      i. Overweight, low body weight, low serum albumin or pre-albumin³, edema, appetite changes, cachexia, restrictive diet and prolonged NPO.
      ii. Dehydration as evidenced by poor skin turgor and / or a decrease in urinary output.
      iii. Inadequate nutritional intake of protein, calories or fluid as evidenced by % of intake at meals or calorie count.
      iv. Possible causes of poor intake including poor dentition, difficulty swallowing, positioning, inability to feed self, GI symptoms, and pain.
      v. Assess renal function if increased protein intake is indicated for the client.
   h. Moisture
      i. Fecal and/or urinary incontinence.
      ii. Areas of excessive perspiration and evidence of moisture or maceration in skin folds.
      iii. Heavily exudating wounds or skin conditions.
      iv. Excessive edema leading to open areas and weeping skin.
   i. Pressure, Shear, Friction
      i. Ability to shift position independently when sitting, lying & transferring; the need for assistive equipment and help to reposition.
      ii. Ability to mobilize and engage in activities.
      iii. Effectiveness of pressure redistribution equipment & devices in use.
      iv. Daily head to toe skin check for the presence of blanchable and non blanchable erythema over bony prominences; do twice daily for high risk clients, e.g. spinal cord injured clients.
   j. Ability to mobilize and transfer.
   k. MRSA or VRE colonization.
   l. Allergies, especially latex allergies.
   m. Complete the Braden Risk Assessment and a head-to-toe skin assessment on admission and at regular intervals ⁴ to assess the risk for developing additional pressure ulcers. (Link to Braden Scale DST)

3. Pain
   a. Type, location, frequency and quality of pain occurring in the ulcer or as a result of treatment.
   b. Pain severity using client self report, observation of non verbal cues and/or a pain scale, e.g. Wong Baker FACES Scale, Visual Analog Scale, Numerical Rating Scale or FLACC⁵
   c. Onset and duration of pain, and precipitating / alleviating factors.

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³ Wound healing is impaired in clients with an albumin of less than 35 g/l or a pre-albumin of less than 180 mg / L (female) or less than 215 mg / L (male). However, serum albumin and pre-albumin are poor indicators of nutritional status in acute illness as they are negative acute-phase reactants and are decreased during infection and inflammation.

⁴ The recommended frequency of Braden Scale completion is outlined in the Braden Scale DST but frequency is ultimately determined by agency policy and standards.

⁵ FLACC (Face, Legs, Arms, Cry and Consolability) is a pain scale used for clients from newborn to age 3 (based on nursing judgment).

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d. Pain associated with movement or repositioning.

e. Impact of pain on function, sleep and mood.

f. Autonomic dysreflexia and / or increased spasticity in clients with a spinal cord injury.

g. Current pharmaceutical and non pharmaceutical interventions for pain and their effectiveness.

4. Lower Limb Assessment (Link to Lower Limb DST)

   a. If there is a pressure ulcer on the lower extremities complete a lower limb assessment (Link to Basic and Advanced Lower Limb Assessment tools).

5. Wound Assessment (Link to Wound Assessment & Treatment Flow Sheets [Basic and Advanced])

   a. History of current & previous ulcers and date of onset.

   b. Location of wound(s), commonly found over bony prominences.

   c. Wound measurements including for undermining, tunnelling or sinus tracts and wound(s) probing to bone.

   d. Appearance of wound bed, noting percentage of tissue type and Stage of wound.

   e. Amount and type of exudate.

   f. Presence of odour, after cleansing.

   g. Description of wound edge and peri-wound skin.

   h. Presence of a foreign body in the wound

6. Wound Infection (Link to Wound Infection DST)

   **Clinical Signs and Symptoms of Wound Infection**

<table>
<thead>
<tr>
<th>Increased Bacterial Bioburden</th>
<th>Localized Infection</th>
<th>Systemic Infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-healing (minimal change in wound measurements after 3 weeks of care)</td>
<td>Onset of wound pain or increasing pain</td>
<td>General malaise (predominantly in elderly &amp; immune compromised clients and children)</td>
</tr>
<tr>
<td>Non-granulation tissue (pink to bright red non-pebbly tissue)</td>
<td>Peri wound induration greater than / equal to 2cm</td>
<td>Fever (may be muted in elderly or immune compromised clients)</td>
</tr>
<tr>
<td>Friable or hypergranulation tissue</td>
<td>Peri wound erythema greater than / equal to 2cm</td>
<td>Rigor / chills</td>
</tr>
<tr>
<td>New areas of necrotic slough</td>
<td>Increased peri wound warmth</td>
<td>Change in behaviour or cognition (especially in elderly clients)</td>
</tr>
<tr>
<td>Increased amount of exudate</td>
<td>Increased wound size and / or the development of sinus tracts and / or satellite wounds</td>
<td>Unexplained high blood sugar (in clients who are diabetic)</td>
</tr>
<tr>
<td>Change in characteristics of exudate from watery and serous to purulent</td>
<td>Purulent exudate</td>
<td>Septic shock potentially leading to multi organ failure</td>
</tr>
<tr>
<td>Odour present after wound cleansing</td>
<td>Increased dysreflexia / spasticity in clients with spinal cord injury</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wound that probes to bone</td>
<td></td>
</tr>
</tbody>
</table>

3 or more of the above S & S are sufficient for a clinical diagnosis of potential or actual wound infection.


   a. In clients with diabetes and/or arterial compromise, visible evidence of localized infection may be muted or non-existent due to compromised arterial blood flow, blunting of the inflammatory process, and diminished sensation.

   b. Infection usually occurs in Stage 3 or 4 pressure ulcers.
c. If 3 or more signs and symptoms of an infection are evident and the infection is not currently being treated, take a swab for C & S.
d. Notify a physician / NP if C & S results are abnormal.

7. Investigations (where these are available), based on assessment results could include:
   a. Measure ABI\(^6\) if the client has a foot ulcer or refer to a wound clinician for same if client has signs and symptoms of arterial compromise.
   b. Albumin or pre-albumin testing for chronic wounds if nutritional concerns are present and the client is not acutely ill.
   c. HgA1c and blood glucose testing if client has diabetes.
   d. Radiology studies to rule out osteomyelitis if the wound probes to bone.
e. Pressure mapping of support surface(s) if available.

Determine Goal of Care

1. Wound treatment goals are determined following analysis of the overall assessment findings including:
   a. The client and family willingness and ability to participate in and adhere to the care plan.
   b. Client concerns.
   c. Client risk factors for wound healability such as systemic disease, poor nutrition or medications that interfere with healing.
   d. The presence of adequate peripheral circulation to support wound healing. For lower extremity wounds, an ABI greater than 0.5 indicates that there is some potential for healing.
   e. Wound assessment including pain and signs and symptoms of infection.
   f. Available resources, equipment and supplies.

2. Choose from the following wound treatment goals based on an analysis of the information in #1:
   a. To heal the wound.
   b. To maintain the wound (wound has the potential to heal but is healing slowly or is stalled due to client, wound or system factors that cannot be mitigated).
   c. To monitor and manage a non-healable wound, e.g. Kennedy Terminal Ulcer, dry gangrene.

Interventions

Develop a plan of care, in conjunction with the client and/or family that incorporates client care, treatment of risk factors, wound treatment goals, wound management, client / family outcomes, client education and discharge plans.

Client Care Management

1. Client Concerns
   a. The plan of care should take into account client / family abilities, concerns, preferences and motivation for treatment.
   b. Develop strategies to address any lack of client and family participation in the plan of care.
   c. Refer to Social Work, if available for financial or psychosocial concerns and for emotional support and counselling as needed.

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\(^6\) Registered nurses must successfully complete additional education before carrying out ankle brachial pressure index testing. Agency / health authority policy and standards must be in place to support practice.

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d. Refer the client to the appropriate professionals to support improved health and wound healing, e.g. improved diet, pressure reduction, exercise plans.

e. Provide support to clients and families when ulcers develop at the end of life and incorporate client / family wishes into the plan of care.

2. Treat Risk Factors for Wound Healability

a. Encourage the client to monitor any pre-existing illnesses such as stroke, heart failure, angina / MI & other cardiac problems, hypertension, PVD, renal or cardiac disease and consult a physician / NP if changes occur.

b. Encourage clients to take their medications as prescribed.

c. Support clients to stop smoking and discuss referral to a smoking cessation program. Refer for harm reduction / substance use management if the client consents.

d. Nutritional Care:

i. Maximize the client’s nutritional status based on client need through adequate protein and calorie intake, especially with Stage 3 and 4 ulcers, if compatible with goals of care.

ii. Reassess the need for protein supplements and additional fluids as the client’s condition changes.

iii. Encourage a minimum of 1500 – 2000 mL of fluid daily or at least 30 mL/ kg of body weight; offer fluids every 2 hours for adult clients with dehydration, fever, vomiting, profuse sweating, diarrhea or heavily draining wounds, unless contraindicated, e.g. heart failure, renal failure and low body weight elderly clients.

iv. Offer fluid for pediatric clients based on an appropriate weight based calculation (100 mL/kg for 1st 10 kg, 50 mL/kg for 2nd 10 kg, 20 mL/kg for remainder).

v. Document the % of meal intake and record any issues with diet tolerance or acceptance.

vi. Consult with a dietitian if the client has a non healing or stage 3 or 4 wound and one or more of the following:

- Braden Scale nutrition subscale score less than or equal to 2 out of 4.
- Nutritional risk factors such as weight loss, dehydration, poor glycemic control, obesity, poor intake or TPN / tube feeding that are not resolving.
- When the client is a child under the age of 2.

vii. Refer to the appropriate professional if the client has difficulty swallowing, poor dentition or other problems eating or digesting food.

viii. Weigh clients every 1-2 weeks to identify weight loss or gain. Pediatric clients may require more frequent weight assessment as per agency policy.

3. Pain Relief

a. If the client has wound pain and / or treatment-related pain, organize care to coordinate with analgesic administration allowing sufficient time for the analgesic to take effect.

b. Administer analgesic medication regularly and in the appropriate dose to control pain; refer the client to a physician / NP if pain is not well controlled.

c. Refer to a wound clinician or physician / NP to determine the need for topical analgesics (e.g. morphine) if wound pain not well controlled. Consult with a pharmacist regarding topical morphine dosage as guidelines are not available in standard drug information resources such as the CPS or LexiComp.

d. Use dressings that are less likely to cause pain & trauma on removal, e.g. non adherent dressings, and / or those which require less frequent changes.

e. Reduce pressure ulcer pain by keeping the wound bed covered and moist, if this is consistent with the goal of treatment.

f. Encourage repositioning as a means to reduce pain; use support surfaces to reduce pressure.

g. Reassess pain at regular intervals and note any increase in severity.

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7 Clients should receive 1.0 - 1.4 g of protein / kg of body weight per day with Stage 1 – 2 pressure ulcers and 1.5 – 2.0 g of protein / kg of body weight with Stage 3 – 4 pressure ulcers. 

8 Assess for renal or liver dysfunction and heart failure if increased fluid intake is indicated.

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4. General Skin Care
   a. Cleanse skin gently with a pH balanced, non-sensitizing skin cleanser and moisturize the skin with lotions or creams; avoid moisturizers with allergens such as perfume, lanolin, preservatives, emulsifiers and stabilizers.
   b. Avoid hot water and excessive scrubbing / friction during hygiene care; use a soft cleaning cloth and pat the skin dry.
   c. Inspect the skin for any new or additional skin damage each time the client is turned or repositioned.
   d. Avoid massaging over bony prominences.

5. Manage Moisture and Incontinence
   a. Establish a bowel and/or bladder program for clients who are incontinent and support clients to toilet as needed.
   b. Avoid using incontinence briefs or pads unless the client is not able to toilet successfully; if using briefs or pads check them with every repositioning (every 2 - 4 h) or if client positions independently, check every 4 h and change briefs / pads when soiled or wet.\(^5\)
   c. Do not “double pad”; if the client voids large amounts use a more absorbent product, change the continence product more frequently or use a condom catheter for males.
   d. Do not use soaker pads if the client is wearing continence briefs.
   e. Do not use multiple layers of bedding or padding, especially ‘soaker pads’. For therapeutic support surfaces, use only those coverings/pads that are air-permeable and recommended for therapeutic support mattresses or seating surfaces.
   f. Gently cleanse skin folds and areas after each incontinent episode with a no-rinse pH balanced cleanser, pat dry when finished and do not rub the skin.
   g. Apply a skin sealant, protectant or barrier product to protect skin from feces and urine and perspiration.
   h. If skin care is not sufficient to protect the skin from feces and infected urine, use a fecal collector bag, condom catheter or indwelling catheter if appropriate until the incontinence problem has been addressed.
   i. To prevent / treat intertrigo in groins, axillas and under breasts, separate skin folds with wicking material or moisture transfer dressings to reduce friction and absorb moisture.
   j. If possible, remove transfer or lifting slings or boards under the individual after use if they can potentially cause areas of moisture retention.
   k. Avoid the use of powders and talc to reduce moisture.
   l. Consider use of a low air loss therapeutic support surface if appropriate.
   m. Consult a wound clinician for unresolved intertrigo, moisture associated skin damage, incontinence associated dermatitis or if a yeast or bacterial skin infection is suspected.

6. Promote Pressure Redistribution
   Working in collaboration with an OT or PT (where possible), consider client goals of care and quality of life when choosing strategies for pressure redistribution.
   a. Positioning / Repositioning
      i. Avoid or limit the time that a client is positioned on a body surface that is damaged or reddened due to pressure.
      ii. When sitting, ensure client’s feet are supported directly on the floor, a foot stool or foot rest so that the hips and knees are at 90 degrees, if possible.
      iii. If the client is chair bound or has an ulcer on a sitting surface, use a pressure redistribution surface on the chair and consider limiting chair sitting to 1-2 hour intervals and reduce to two 45-minute sessions / day if the wound deteriorates (new bruising, increased drainage, increased wound pain or increased spasms for SCI clients).
      iv. Instruct clients who can move independently to shift weight every 15 minutes when sitting. Reposition chair bound clients who cannot move themselves q1h when sitting.
      v. If the resident is sitting in a tilting wheelchair then use the tilt feature regularly to alleviate pressure. The chair must be tilted at least 30 degrees to alleviate pressure over the sitting surface. Consult with an OT for tilt schedule as necessary.

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\(^5\) Refer to the manufacturer’s guidelines for correct brief usage.

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vi. For clients who are side laying; use foam wedges or pillows to support a lateral position with a 15-30 degree tilt and place a pillow between the ankles and knees to avoid contact between these bony prominences.

vii. Use small frequent repositioning shifts between full position changes to redistribute pressure

viii. For clients on bed rest, limit head-of-bed elevation to 30 degrees for short periods of time (45 minutes or less if client has ischial or sacral ulcers) unless the client is eating, has an enteral feed, is at risk for aspiration pneumonia or this is contraindicated by a medical condition. Ensure the knee gatch is raised 10 – 20 degrees before the HOB is raised 10 and align the client’s hip bones with the point where the bed flexes.

ix. If ischial or sacral ulcers deteriorate (new bruising, increased drainage, increased wound pain or increased spasms for SCI clients) reduce time with the HOB elevated to less than 45 minutes if this is not contraindicated.

tax. Elevating heels:
   • Elevate heels off the surface of the bed at all times even when using a therapeutic support surface; use pillows, therapeutic pressure offloading devices or devices specifically designed for the client.
   • Support the knees to avoid hyperextension when heels are elevated.
   • Heel elevation in bed is especially important for clients with diabetes mellitus, peripheral vascular disease, neuropathy and surgery.
   • Collaborate with an OT, PT or Wound Clinician to determine the most appropriate heel off-loading device if necessary. Do not use rolled blankets, towels, or pillow cases, incontinent pads or IV bags to elevate heels.
   • Heel protectors provide protection from friction and shear but not from pressure as they do not elevate the heels off the bed.

xi. Avoid additional bed linens, such as incontinent pads under the client; keep bed linens smooth and unwrinkled.

xii. If possible, remove transfer or lifting slings or boards from under the client after use as they can potentially cause areas of pressure.

xiii. Avoid or limit the time that a client is repositioned on a body surface that is damaged or reddened due to pressure.

xiv. Establish a client specific repositioning schedule (e.g. every 2 hours) based the client’s overall assessment, Braden risk assessment, ability to reposition independently, severity of the wound and the characteristics of the client’s support surface. Consider all bony prominences when developing this plan to avoid compromising other areas when reducing pressure off the target area.

xv. High-risk clients with poor tissue tolerance may require more frequent turning and / or shifts in position.

xvi. Inspect the skin for any new or additional damage each time the client is turned or repositioned.

b. Pressure Redistribution Devices / Surfaces

i. Refer, where available, to an OT or PT to develop a mobilization plan if indicated.

ii. Based on client assessment, collaborate with an OT / PT to provide appropriate specialized pressure redistribution devices for both lying and sitting; consider client’s needs for control of moisture, friction and shear, bed mobility, transfers, caregiver impacts, ease of use and cost / benefit when choosing support surfaces.

iii. Do not use multiple layers of bedding or padding, especially ‘soaker pads’. For therapeutic support surfaces, use only those coverings/pads that are air-permeable and recommended for therapeutic support mattresses or seating surfaces.

iv. Avoid multiple layers of bedding or padding over redistribution surfaces; use only coverings or pads that are recommended for specialty beds.

v. Do not use rings or donut shaped devices to redistribute pressure.

vi. Reassess the effectiveness of pressure redistribution devices and check these devices for “bottoming out” daily or more frequently if indicated.

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10 Clients post arthroscopy should not have the knee gatch raised to avoid hip and knee flexion.

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vii. Elevate heels off the surface of the bed using a pillow, a therapeutic pressure offloading device or a device specifically designed for the client that ensures all pressure is eliminated from heels and feet when the client is in bed. Do not use rolled blankets, towels, incontinent pads or IV bags. Heel protectors may protect the heel from friction and shear but they do not protect against pressure as they do not elevate the heel off of the bed.

7. Reduce or Eliminate Shear and Friction
   a. When sitting, ensure client’s feet are supported directly on the floor, on a foot stool or a foot rest so that the hips and knees are at 90 degrees to prevent sliding down in the chair.
   b. If the resident is sitting in a tilting wheelchair then use the tilt feature regularly to alleviate pressure. The chair must be tilted at least 30 degrees to alleviate pressure over the sitting surface. Consult with an OT for tilt schedule as necessary.
   c. Elevating the head of the bed (HOB):
      i. Limit head-of-bed elevation to 30 degrees unless contraindicated by a medical condition or dysphagia.
      ii. For clients on bed rest limit HOB elevation (30° or less) to short periods of time (45 minutes or less) if the client has an ischial or sacral ulcer unless the client is eating, has an enteral feed, is at risk for aspiration pneumonia or this is contraindicated by a medical condition.
      iii. Ensure the bed is flat when moving the client up in bed, then raised the knee gatch 10 – 20 degrees before the HOB is raised. 11 Ensure the client’s hip bones are aligned 10 cm above the point where the bed flexes.
   d. Elevating the heels off the surface of the bed – See Redistributing Pressure # 5 (x) on page 8.
   e. Use a lift or transfer sheet to minimize friction and/or shear when repositioning; do not drag the client.
   f. For lateral transfers (bed to stretcher or stretcher to operating table) use sliding boards, roll boards or transfer sheets to minimize shearing.
   g. Consider the use of patient handling equipment, such as, positioning slings with ceiling lifts, to avoid shear and friction when repositioning.
   h. Use products such as elbow & heel protectors to minimize contact between the skin and bed linen; synthetic sheepskin does not reduce friction / shear.

Wound Care Management

1. Reassess all wounds at every dressing change and do a full wound reassessment weekly, according to the care plan or as required by agency policy and the status of the wound (Link to Wound Assessment & Treatment Flow Sheet).

2. A wound clinician and / or physician / NP must be notified if the wound does not show signs of healing after 3 weeks of treatment or if the wound deteriorates.

3. Wound Treatment - Healable Ulcers (other than Dry Heel Ulcers)
   a. If soft boggy eschar is evident in the wound, debride using autolytic debridement. If autolytic debridement is not effective within one week of treatment, consult with a wound clinician or physician / NP.
   b. If eschar is present in the lower limb wound and signs and symptoms of arterial compromise / venous insufficiency are evident, consult with a wound clinician or physician / NP (Link to Lower Limb DST)
   c. Goal of Treatment - Moist wound healing (Link to Wound Bed Preparation DST).
      i. Adhere rigidly to hand washing prior to any contact with the wound.
      ii. Choose the appropriate aseptic dressing technique (sterile, no touch or clean) to prevent infection based on the clinical condition of the client, type and healability of wound, invasiveness of the dressing procedure, goal of care and agency policy.
      iii. Cleanse / irrigate the wound (Link to Wound Cleansing Procedure):
         • Cleanse with at least room temperature sterile normal saline / sterile water.

11 Clients post hip and knee arthroscopy should not have the knee gatch raised to avoid flexion of these joints.

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If irrigation is required to remove exudate and / or slough from the wound, gently irrigate using a 30 – 35 mL syringe with a wound irrigation tip catheter or an 18 - 19 gauge device. For wounds that are clean use a squeezable 30 –100 mL sterile normal saline or water container designated for wound cleansing and held 10-15 cm (4-6 inches) from the wound.  

- Do not irrigate sinus tracts, tunnels or undermined areas that have an undetermined endpoint.
- When irrigating the wound, use personal protective equipment to protect from back-splash.
- Do not irrigate undermining, sinuses and tunnels which extend beyond 15cm (6 inches) unless directed by a physician / NP. 15 cm is the length of a cotton-tipped applicator or metal probe.
- Use personal protective equipment to protect from back-splash when irrigating the wound.

iv. Loosely fill any dead space to ensure that healing occurs from the base of the wound.

v. Use skin sealants, protectants or moisture barriers as needed to keep the peri wound skin dry and intact.

vi. Minimize dressing changes to maintain wound temperature and protect against infection while maintaining moisture balance.

vii. Maintain an open wound edge to support epithelialization and prevent wound edges from rolling.

viii. Monitor for and treat signs and symptoms of infection.

ix. Apply moisturizer to the surrounding skin.

d. Determine the dressing change frequency based upon the wound assessment including:

i. The client's risk for infection.

ii. Dressing products used to control the bacterial load.

iii. Effectiveness of the cover dressing to manage the amount of drainage.

iv. Need to minimize wound disturbance to allow for healing.

4. Wound Treatment - Healable Dry Heel Ulcers

a. Do not debride dry stable eschar that covers pressure ulcers found on the heel; consult with a wound clinician or physician / NP for these ulcers.

b. Goal of Treatment – Maintain dry eschar as a protective cap and allow the ulcer to heal on its own.

i. Adhere rigidly to hand washing prior to any contact with the wound.

ii. Keep the wound dry; do not cleanse with normal saline or water.

iii. Cleanse with an antiseptic solution (povidone iodine or chlorhexidene) and pat dry to remove any excess solution. Paint wound with povidone iodine or chlorhexidene daily or every other day and ensure the wound remains dry.

iv. Apply a protective dry dressing such as gauze, if indicated. When the dry dressing is applied, allow the povidone iodine or chlorhexidene solution to dry before applying the dressing.

v. Monitor for and treat signs and symptoms of infection.

vi. Hydrate the surrounding skin with moisturizer.

c. If dry eschar begins to lift or becomes moist or boggy, consult a wound clinician or a physician / NP as this could indicate wet gangrene.

5. Wound Treatment – Moist Non-healable Ulcers

a. Debridement may be done to reduce bacterial burden or reduce odour in non-healing wounds if recommended by a wound clinician or physician / NP.

b. Goal of Treatment – Maintain client comfort and current wound condition for as long as is possible:

i. Adhere rigidly to hand washing prior to any contact with the wound.

ii. Use the appropriate aseptic technique (sterile, no touch or clean) based on the clinical condition of the client, type and healability of the wound, invasiveness of the dressing procedure, goal of care and agency policy.

iii. Cleanse / irrigate the wound (Link to Wound Cleansing Procedure):

- Cleanse with at least room temperature sterile normal saline / sterile water.
• If irrigation is required to remove exudate and / or slough from the wound, gently irrigate using a 30 – 35 mL syringe with a wound irrigation tip catheter or an 18 - 19 gauge device. For wounds that are clean use a squeezable 30 –100 mL sterile normal saline or water container designated for wound cleansing and held 10-15 cm (4-6 inches) from the wound. 13
• Do not irrigate sinus tracts, tunnels or undermined areas that have an undetermined endpoint.
• When irrigating the wound, use personal protective equipment to protect from back-splash.
• Do not irrigate undermining, sinuses and tunnels which extend beyond 15cm (6 inches) unless directed by a physician / NP. 15 cm is the length of a cotton-tipped applicator or metal probe.
• Use personal protective equipment to protect from back-splash when irrigating the wound.

iii. Loosely fill any dead space if the wound is deep.
iv. Use skin sealants, protectants or moisture barriers as needed to keep the peri wound skin dry and intact.
v. Minimize dressing changes to maintain wound temperature and protect against infection while maintaining moisture balance.
vi. Hydrate the surrounding skin with moisturizer.

• Determine the dressing change frequency based upon the wound assessment including the:
i. Client's risk for infection,
ii. Dressing product used to control the bacterial load.
iii. Effectiveness of the cover dressing to manage the anticipated drainage.

6. Wound Treatment – Dry Non-healable Ulcers
a. If eschar is present in the wound or if signs and symptoms of arterial compromise / venous insufficiency are evident, consult with a wound clinician or physician / NP (Link to Lower Limb DST)
b. If the wound is covered with hard, dry eschar, debridement and moist wound healing are contraindicated.
c. **Goal of Treatment** – Maintain dry eschar and protect the wound.
i. Adhere rigidly to hand washing prior to any contact with the wound.
ii. Choose the appropriate aseptic technique (sterile, no touch or clean) to prevent infection based on the following considerations: the clinical condition of the client, type and healability of the wound, invasiveness of the dressing procedure, goal of care and agency policy.
iii. **Keep the wound dry:** do not cleanse with normal saline or water as this may soften the eschar.
iv. Cleanse with an antiseptic solution (povidone iodine or chlorhexidine) and pat dry to remove any excess solution. Paint wound with povidone iodine or chlorhexidine daily or every other day and ensure the wound remains dry.
v. Apply a protective dry dressing such as gauze, if indicated. If a dry dressing is applied, allow the povidone iodine or chlorhexidine solution to dry before applying the dressing.
vi. Apply moisturizer to the surrounding skin.
vii. If dry eschar begins to lift or becomes moist / boggy, consult a wound clinician or physician / NP as this could indicate wet gangrene.

d. Determine the dressing change frequency based upon the wound assessment including the client's risk for infection.

7. Wound Infection (Link to Wound Bed Preparation DST)
a. Implement strategies to prevent infection, e.g. hand-washing and appropriate aseptic dressing technique.
b. Debride non viable tissue using a debridement method that is appropriate to the wound.
c. For healable wounds with significant bioburden, use broad spectrum antimicrobial dressings that have a low potential for developing resistance.
d. Consult with a wound clinician or physician / NP if signs and symptoms of infection are present or the wound probes to bone.

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13 These cleansing devices deliver 8 – 15 psi of pressure which is enough to remove necrotic tissue, slough, bacteria and debris without damaging granulation tissue.

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e. Normal saline or sterile water containers should be single client use only and must be discarded after 24 hours if there is solution left over. Dressing supplies must be for single client use only.
f. If dressing supplies are being saved follow the appropriate process. (Link to Wound Bed Preparation DST, page 11).

7. Notify the wound clinician or physician / NP if any of the following occur:
   a. There is an acute onset of pain or increasing pain.
   b. The wound probes to bone if this is a new finding.
   c. The client develops multiple wounds or the wound deteriorates.

Client Education and Resources

1. Teach client and/or family:
   a. Information about the causes and prevention of pressure ulcers, the importance if proper positioning and strategies for pressure redistribution / reduction, including daily or twice daily examination of skin especially over bony prominences.
   b. Strategies for reducing or eliminating moisture, friction and shear, including proper technique for elevating the HOB if appropriate.
   c. Providing pressure redistribution for heels, toes, and other bony prominences as necessary.
   d. Education concerning relevant disease processes.
   e. How chronic disease affects the healing process and the importance of adhering to the treatment plan.
   f. Measures to maintain clean well-moisturized skin and avoid all chemical and mechanical traumas.
   g. The benefits of smoking cessation and support to find a smoking cessation program if the client is willing.
   h. Strategies for improving nutrition, especially increasing protein and fluid intake and weight reduction, if not contraindicated.
   i. Strategies for managing pain during and between dressing changes.
   j. Signs of complications including wound deterioration, infection, and increased pain and the need to liaise with a health professional when these occur.
   k. The need for ongoing follow-up with a health care provider at regular intervals.

2. If the client and/or family are able to participate in wound care, teach them about:
   a. Signs and symptoms of wound infection and strategies to prevent infection, such as frequent hand washing.
   b. Wound cleansing and dressing techniques.
   c. Need for moisture balance, healing wound edges and healthy peri wound skin.
   d. Appropriate aseptic technique when changing the dressing.
   e. Reportable changes in the wound.
   f. Signs of complications including wound deterioration, infection, and increased pain and the need to liaise with a health professional when these occur.

3. For clients / families at the end of life
   a. Discuss goals of care with client / family.
   b. Help clients / families to understand that ulcers may be unavoidable despite appropriate care.

4. Teach client / family about the roles of the interprofessional members of the wound care team.

5. Provide any written materials that will support / reinforce teaching.

Discharge Planning

1. When a client who is currently experiencing skin breakdown is being transferred to another unit (PARR / PACU to a surgical unit) or to another care setting (acute care, community care or residential care) ensure the receiving unit / facility is provided with a care plan that outlines the current client care including strategies for reducing risk status and preventing skin breakdown.

2. Advance notice should be given when transferring clients who need specialized pressure redistribution equipment to ensure it is in place at the time of transfer.
3. Discharge planning, if discharge is anticipated, should be started during the initial client encounter and should support timely discharge and optimal client independence.

**Client / Family Outcomes**

1. Intended
   a. The ulcer heals, if healing is the goal.
   b. The ulcer is maintained and infection free if healing is not achievable.
   c. The client and family understand their role in preventing further tissue damage and incorporate activities such as position shifts, frequent turning, eliminating pressure from heels and feet, skin examination especially over bony prominences and good nutrition into their daily activities.

2. Unintended
   a. The ulcer does not heal when healing is the goal.
   b. The ulcer shows sign and symptoms of infection.
   c. The client and family do not understand their role in preventing further tissue damage and do not incorporate preventive activities such as position shifts, frequent turning and eliminating pressure into their daily activities.

**Documentation**

1. Document initial and ongoing assessments as per agency guidelines.
2. Document care plans, clinical outcomes and care plan revisions, as necessary as per agency guidelines.

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