All Wales Tissue Viability Nurse Forum
Fforwm Nyrsys Hyfywedd Meinwe Cymru Gyfan

Essential Elements of Pressure Ulcer Prevention & Management

All Wales Guidance

This document has been created by the All Wales Tissue Viability Nurse (AWTVN) Forum and is based on the European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. Prevention and treatment of pressure ulcers: quick reference guide. Washington DC: National Pressure Ulcer Advisory Panel; (EPUAP/NPUAP 2009) and formatted from the Getting Started Kit: How to Guide Document devised by Institute for Health Improvement.
Part 1

Essential Elements of Pressure Ulcer Prevention

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EPUAP/NPUAP Statement

The purpose of the prevention recommendations is to guide evidence based care to prevent the development of pressure ulcers. The guidance will apply to all vulnerable individuals of all age groups. It is intended for the use of health care professionals involved in the care of patients and vulnerable people who are at risk of developing pressure ulcers. Whether, they are in a hospital, long-term care, assisted living at home or any other setting, and regardless of their diagnosis or health care needs. It will also help guide patients and carers on the range of prevention strategies that are available.

All Wales Tissue Viability Nurse Forum

The All Wales Tissue Viability Nurse (AWTVN) Forum has scrutinised the guidelines, taken strength of evidence into account, considered ways of working in Wales and the needs of the Welsh population and adapted the EPUAP/NPUAP (2009) guidelines for use within all care settings in Wales.

This adapted document is deliberately succinct, identifying the standard of care the AWTVN Forum expects for service users in Wales. For full explanations and details of the strength of evidence for each statement please refer to the original EPUAP/NPUAP (2009) guidelines www.epuap.org

The Case for Preventing Acquired Pressure Ulcers

- Cost to patient - pain, extended hospital stay, possible death.
- Estimated cost of treating pressure ulcers in the UK is estimated at between £1.4 - £2.1 billion annually – 4% of total NHS expenditure (Bennett, 2004)
- Cost of treating one Category 4 pressure ulcer is estimated at £10,551 (Bennett, 2004).
- Annual spend on dressing materials by the NHS is £89 million (DoH, 2005).
- It’s envisaged that the number of patients with pressure ulcers will increase (EPUAP, 1998).
## Pressure Ulcer Classification (EPUAP/NPUAP 2009)

### Category/Grade 1: Non-blanchable redness of intact skin
- Intact skin with non-blanchable erythema of a localised area, usually over a bony prominence.
- Discolouration of the skin, warmth, oedema, hardness or pain may also be present.
- Darkly pigmented skin may not have visible blanching.
- The area may also be painful, firm, soft, warmer or cooler as compared to adjacent tissue.

### Category/Grade 2: Partial thickness skin loss or blister
- Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough.
- May also present as an intact or open/ruptured serum-filled or sero-sanguinous filled blister.
- A shiny or dry shallow ulcer without slough or bruising.

**NOTE:** This grade should not be used to describe incontinence associated dermatitis, maceration or excoriation.

### Category / Grade 3: Full thickness skin loss (fat visible)
- Full thickness tissue loss.
- Subcutaneous fat may be visible but not bone, tendon or muscle.
- Slough may be present. May include undermining & tunneling.
- The depth will vary by anatomical location, i.e. Category/Grade 3 ulcers on the bridge of the nose, ear, occiput and malleolus can be shallow. Areas of significant adiposity (fat) can result in deep Category/Grade 3 ulcers.

### Category / Grade 4: Full thickness tissue loss (muscle / bone visible)
- Full thickness tissue loss - exposed or directly palpable bone, tendon or muscle. Slough or eschar may be present. Often includes undermining / tunneling. The depth of a will vary by anatomical location. i.e. Category/Grade 4 ulcers on the bridge of the nose, ear, occiput and malleolus can be shallow. Areas of significant adiposity (fat) can result in deep Category/Grade 4 ulcers extending into muscle/ supporting structures (fascia, tendon or joint capsule) making osteomyelitis likely to occur.
Essential Elements of Pressure

Ulcer Prevention

Prevention in individuals at risk should be provided on a continuous basis during the time that they are at risk.

- Conduct a pressure ulcer risk assessment for all patients
- Reassess risk for all patients
- Inspect skin
- Manage moisture: keep the patient dry and moisturise skin
- Optimise nutrition and hydration
- Minimise pressure

Special considerations

Special populations
A. Conduct a Pressure Ulcer Risk Assessment for All Patients

Each health care setting should have a policy in place that includes clear recommendations for a structured approach to risk assessment relevant to that health care setting; clinical areas to be targeted; the timing of risk assessment and reassessment. This may be achieved through the use of a risk assessment scale in combination with a comprehensive skin assessment and clinical judgment.

Evidence suggests that the introduction of these elements, in conjunction with the establishment of skin-care teams, education programs, and care protocols, can reduce the incidence of pressure ulcers.

What recommendations can be put in place to ensure the pressure ulcer risk assessment of all patients?

- Establish a risk assessment policy which identifies an appropriate risk assessment tool to be used and the timing of assessment and reassessment.
- Educate health care professionals on how to achieve an accurate and reliable risk assessment and the importance of documenting all risk assessments
- Conduct a risk assessment on admission using a structured approach combining an identified tool, a comprehensive skin assessment to evaluate any alterations to intact skin and clinical judgment to identify individuals at risk of developing pressure ulcers informed by knowledge of key risk factors.
- Use a structured approach to risk assessment that includes assessment of activity and mobility, consider individuals who are bedfast and/or chair fast to be at risk of pressure ulcer development.
- Consider the impact of the following factors on an individual’s risk of pressure ulcer development: nutritional indicators, factors affecting perfusion and oxy-

Risk factors identified in a risk assessment should lead to an individualized plan of care to minimise the impact of those variables. Documentation of risk assessments ensures communication within the multi-disciplinary team, provides evidence that care planning is appropriate, and serves as a benchmark for monitoring the individual’s progress.
B. Re-assess Risk for All Patients

Risk assessments should be repeated regularly and as frequently as required by the individual’s condition. Reassessment should also be undertaken if there is any change in patient condition.

What recommendations can be put in place to ensure reassessment of risk?

- Develop and implement a prevention plan when an individual has been identified as being at risk of developing pressure ulcers.
- Risk factors identified in a risk assessment should lead to an individualised plan of care to minimise the impact of those variables.

Implement the following steps for all patients identified (in A and B) as being at risk of pressure ulcers.

Inspect Skin

Ongoing assessment of the skin is necessary to detect early signs of pressure damage. Inspect skin regularly for signs of redness in individuals identified as being at risk of pressure ulceration. The frequency of inspection may need to be increased in response to any deterioration in overall condition.

Each health care setting should have a policy in place that includes recommendations for a structured approach to skin assessment relevant to the setting, as well as for clinical areas to be targeted and the timing of assessment/reassessment. It should make clear recommendations for documenting skin assessment and communicating information to the wider health care team.

Sections identified as warning signs for pressure ulcer development are localised heat, oedema and induration. It is acknowledged that Category/Grade I pressure ulcers can go undetected as it is not always possible to see signs of redness on darkly pigmented skin.
A number of studies have identified pain as a major factor for individuals with pressure ulcers. Several studies also offer some indication that pain over the site was a precursor to tissue breakdown.

Accurate documentation is essential for monitoring the progress of the individual and to aiding communication between professionals.

What recommendations can be put in place to ensure inspection of the skin?

- Ensure that a complete skin assessment is part of the risk assessment screening policy.
- Educate professionals on how to undertake a comprehensive skin assessment that includes the techniques for identifying blanching response, localised heat, oedema and induration (hardness), especially in individuals with darkly pigmented skin.
- Inspect skin as frequently as necessary for signs of redness in individuals identified as being at risk of pressure ulceration as ongoing assessment of the skin is necessary to detect early signs of pressure damage.
- Ask individuals to identify any areas of discomfort or pain that could be attributed to pressure damage.
- Observe the skin for pressure damage caused by medical devices (e.g. catheters, oxygen tubing, ventilator tubing, semi rigid cervical collars, etc.).
- Document all skin assessments, noting details of any pain possibly related to pressure damage.
- Whenever possible, do not position the individual onto a body surface that is still reddened from a previous episode of pressure loading.
- Do not massage or vigorously rub skin that is at risk for pressure ulceration for pressure ulcer prevention. As well as being painful, rubbing the skin can also cause mild tissue destruction or provoke an inflammatory reaction, particularly in the frail elderly.
The mechanical properties of the stratum corneum are changed by the presence of moisture and as a function of temperature.

Dry skin also seems to be a significant and independent risk factor for pressure ulcer development.

What recommendations can be put in place to ensure effective management of moisture?

- Consider individuals with skin conditions such as dry skin, erythema, to be at risk of pressure ulcer development.
- Use skin emollients to hydrate dry skin in order to reduce risk of skin damage.

Optimise Nutrition and Hydration

Malnutrition or under nutrition is a reversible risk factor for pressure ulcer development, early identification and management of malnutrition is very important. Individuals at risk of pressure ulcer development may also be at risk of malnutrition, and so should be screened for nutritional status.

Nutritional support should include:

- Nutritional assessment
- Estimation of nutritional requirements
- Comparison of nutrient intake with estimated requirements
- Provision of appropriate nutrition intervention, based on appropriate feeding route
- Monitoring and evaluation of nutritional outcome, with reassessment of nutritional status at frequent intervals while an individual is at risk.
Oral nutrition (via normal feeding and/or with additional sip feeding) is the preferred route for nutrition, and should be supported whenever possible.

Oral nutritional supplements are of value because many pressure-ulcer-prone patients often cannot meet their nutritional requirements via normal oral food intake. Oral nutritional supplementation seems to be associated with a significant reduction in pressure ulcer development, compared to routine care. Enteral (tube feeding) and parenteral (delivered outside the alimentary tract) nutrition may be necessary when oral nutrition is inadequate or not possible, based on the individual’s condition and goals.

What recommendations can be put in place to optimise nutrition and hydration?

- Have a nutritional screening policy in place along with recommended frequency of screening for implementation.
- Screen and assess the nutritional status of every individual at risk of pressure ulcers using a valid, reliable and practical tool for nutritional screening, that is quick and easy to use and acceptable to both the individual and health care worker.
- Refer each individual with nutritional risk and pressure ulcer risk to a registered dietitian. Also, if needed, to a multidisciplinary nutritional team that includes a registered dietitian, a nurse specialising in nutrition, a physician, a speech and language therapist, an occupational therapist and, when necessary, a dentist.
- Follow relevant and evidence based guidelines on enteral nutrition and hydration for individuals at risk of pressure ulcers, who show nutritional risks or nutritional problems.
- Offer high-protein mixed oral nutritional supplements and/or tube feeding, in addition to the usual diet, to individuals with nutritional risk and pressure ulcer risk because of acute or chronic diseases, or following a surgical intervention.
- Administer oral nutritional supplements (ONS) and/or tube feeding (TF) in between the regular meals to avoid reduction of normal food and fluid intake during regular mealtimes.
Two key components have proven especially effective in minimising pressure.

1. Repositioning patients

The use of repositioning should be considered in all at-risk individuals as a prevention strategy.

High pressures over bony prominences, for a short period of time, and low pressures over bony prominences, for a long period of time, are equally damaging.

In order to lessen the individual’s risk of pressure ulcer development, it is important to reduce the time and the amount of pressure she/he is exposed to.

When an individual is seated in a chair the weight of the body causes the greatest exposure to pressure occurring over the ischial tuberosities. As the loaded area in such cases is relatively small the pressure will be high, therefore, without pressure relief, a pressure ulcer will occur very quickly.

2. Support Surfaces and Other Devices for Pressure Ulcer Prevention

Not all support surfaces are compatible with all care settings and should not, therefore, be based solely on the perceived level of risk for pressure ulcer development or the category of any existing pressure ulcers. Consideration should be made of factors, such as, the individual’s level of mobility within the bed, his/her comfort, the need for microclimate control and the place and circumstances of care provision.

Support surface use in a home setting requires consideration of the weight of the bed, the structure of the home, the width of doors, the availability of uninterrupted electrical power and the ability to promote ventilation of heat from the motor.
What recommendations can be put in place to minimise pressure through repositioning?

- Repositioning should be undertaken to reduce the duration and magnitude of pressure over vulnerable areas of the body. Reposition the individual in such a way that pressure is relieved or redistributed.

- Repositioning frequency will be determined by the individual’s tissue tolerance, his/her level of activity and mobility, his/her general medical condition, the support surface in use, the overall treatment objectives and assessments of the individual’s skin condition. Repositioning contributes to the individual’s comfort, dignity and functional ability.

- Assess the individual’s skin condition and general comfort. If the individual is not responding as expected to the repositioning regime, reconsider the frequency and method of repositioning.

- Avoid subjecting the skin to pressure and shear forces. Use transfer aids to reduce friction and shear. Do not drag the individual while repositioning.

- Avoid positioning the individual onto bony prominences with existing non-blanchable erythema.

- Repositioning should be undertaken using the 30-degree tilted side-lying position (alternately: right side, back, left side) or the prone position if the individual can tolerate this and his/her medical condition allows.

- Avoid postures that increase pressure, such as the 90-degree side-lying position, or the semi-recumbent position.

What recommendations can be put in place to minimise pressure with support surfaces?

- Examine the appropriateness and functionality of the support surfaces on every encounter with the individual and verify that the support surface is being used within its functional life span, as indicated by the specific manufacturer’s recommended test method (or other industry recognised test method)

- Use higher-specification foam pressure redistributing mattresses for all individuals assessed as being at risk for pressure ulcer development. There is no evidence of the superiority of one higher-specification foam mattress over alternative higher-specification foam mattresses.

- Use an active support surface (overlay or mattress) for patients at a higher risk of pressure ulcer development where frequent manual repositioning is not possible.

- Alternating pressure active support overlays and replacement mattresses have a similar efficacy in terms of pressure ulcer incidence.

- Do not use small cell (air cells <10 cm in diameter) alternating pressure air mattresses or overlays.

- Avoid use of synthetic sheepskin pads, cut-out, ring, or doughnut-type devices and water-filled gloves. Natural sheepskin pads might assist in preventing pressure ulcers.
Special Considerations

Heels

- Inspect the skin of the heels regularly.
- Ensure that the heels are free of the surface of the bed.
- Heel-protection devices / pillows should elevate the heel completely (offload them) in such a way as to distribute the weight of the leg along the calf without putting pressure on the Achilles tendon. The knee should be in slight flexion to prevent obstruction of the popliteal vein.

Seating

- Aim to position the seated individual so as to maintain his/her full range of activities whilst also offloading the heels and providing adequate pressure relief to other vulnerable areas.
- Select a posture that is acceptable for the individual and minimises the pressures and shear exerted on the skin and soft tissues.
- Use a pressure redistributing / alternating seat cushion for individuals sitting in a chair whose mobility is reduced and who are, thus, at risk of pressure ulcer development.
- Place the feet of the individual on a footstool or footrest when the feet do not reach the floor.
- Limit the time an individual spends seated in a chair.
Special Populations

Spinal Cord Injured Individuals &
Other Wheelchair Dependent Individuals

- Refer individuals to a seating professional for evaluation if sitting is unavoidable.
- Individualise the prescription of a wheelchair and seating support surface and associated equipment for posture and pressure redistribution whilst considering mobility and lifestyle. Weigh the risks and benefits of supported sitting against benefits to both physical and emotional health.
- Select and periodically re-evaluate wheelchair and seating systems according to individualised anthropometric, ergonomic and functional principles.
- Select a stretchable cushion cover that fits loosely on the top surface of the pressure redistributing cushion and is capable of conforming to the body contours. Assess the cushion and cover for heat dissipation. Select a cushion and cover that permit air exchange to minimise temperature and moisture at the buttock interface.
- Provide complete and accurate training on use and maintenance of wheelchair and cushion devices delivered to the individual.
- Provide adequate seat tilt to prevent sliding forward in the wheelchair, and adjust footrests and armrests to maintain proper posture and pressure redistribution.
- Avoid the use of elevating leg rests if the individual has inadequate hamstring length.
- Use variable position seating (tilt-in-space, recline and standing) in manual or power wheelchairs to redistribute load off of the seat surface.
- Identify effective pressure relief manoeuvres, such as “pressure relief lifts” / weight shifts and educate individuals in performance of methods consistent with the ability of the individual.
Patients Requiring Palliative Care

- Complete a comprehensive assessment of the individual.
- Reposition and turn the individual at periodic intervals, in accordance with the individual’s wishes and tolerance. Establish a flexible repositioning schedule based on individual preferences and tolerance and the pressure-redistribution characteristics of the support surface. Observe the individual’s choices in turning, including whether he/she has a “position of comfort,” after explaining the rationale for turning. Comfort is of primary importance and may supersede pressure ulcer prevention for individuals who are actively dying or have conditions causing them to have a single position of comfort.
- Pre-medicate the individual 20 to 30 minutes prior to a scheduled position change for individuals who experience significant pain on movement.
- Strive to reposition an individual receiving palliative care at least every 4 hours on a high specification pressure redistributing mattress or every 2 hours on a standard mattress. Consider changing the support surface to improve pressure redistribution and comfort.
- Individualise the turning and repositioning schedule, ensuring that it is consistent with the individual’s goals and wishes, current clinical status and combination of co-morbid conditions, as medically feasible. Document turning and repositioning, as well as the factors influencing these decisions (e.g. individual wishes or medical needs).
- Strive to maintain adequate nutrition and hydration compatible with the individual’s condition and wishes. Adequate nutritional support is often not attainable when the individual is unable or refuses to eat, based on certain disease states. Allow the individual fluids and foods of choice and offer several small meals per day. Consider offering nutritional protein supplements.
- Maintain skin integrity to the extent possible. Apply skin emollients as per manufacturer’s directions to maintain adequate skin moisture and prevent dryness.
- Minimise the potential adverse effects of incontinence on skin.
Critically Ill Patients

- Consider the need to change support surfaces for individuals with poor local and systemic oxygenation and perfusion to improve pressure redistribution, shear reduction, and microclimate control and utilise additional features as needed (e.g. turn assistance, percussion).
- Consider the need to change support surfaces for individuals who cannot be turned for medical reasons, such as spinal instability and haemodynamic instability. Resume routine repositioning as soon as these conditions stabilise.
- Consider slow, gradual turns allowing sufficient time for stabilisation of haemodynamic and oxygenation status.
- Consider more frequent small shifts in position to allow some re-perfusion in individuals who cannot tolerate frequent major shifts in body position.
- Prevent shear injury when lateral rotation features are used. Assess skin frequently for shear injury. Secure the individual with bolster pads (provided by the manufacturer) to prevent sacral shearing. The individual should be aligned properly in the centre of the surface.
- Continue to turn the individual and assess skin for pressure and shear damage. Consider discontinuing lateral rotation at the first sign of tissue damage, and re-evaluate the individual and the support surface. Weigh the risks and benefits of continued lateral rotation for individuals in respiratory distress.
- Change lateral rotation support surface to a support system with improved pressure redistribution, shear reduction and microclimate control, and without rotation when there is evidence of shear injury. Position the individual off the area of injury as much as possible.

Patients in the Operating Room

- Refine risk assessment of individuals undergoing surgery by examining additional factors that are likely to increase risk of pressure ulcer development, such as length of operation, increased hypotensive episodes intra operatively, low core temperature during surgery and reduced mobility on day one post operatively.
- Use a high specification pressure redistributing mattress on the operating table for all individuals identified as being at risk of pressure ulcer development.
- Position the patient in such a way as to reduce the risk of pressure ulcer development during surgery.
- Elevate the heels completely (offload them) in such a way as to distribute the weight of the leg along the calf without putting all the pressure on the Achilles tendon. The knee should be in slight flexion.
- Pay attention to pressure redistribution prior to and after surgery.

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- Pay attention to pressure redistribution prior to and after surgery.
Bariatric Patients

- Match the individual to the bed from the time of admission, using a bed that supports the weight and check that the mattress doesn’t “bottom out”. Ensure that the bed surface is sufficiently wide to allow turning of the individual and confirm that the width of the bariatric individual does not reach the side rails of the bed when the individual is turned side-to-side.

- Consider using features that provide air flow over the surface of the skin to facilitate fluid evaporation if the skin is excessively moist.

- Use a wheelchair and chair wide enough to accommodate the individual’s girth and provide bariatric walkers, overhead trapezes on beds and other devices to support continued mobility and independence.

- Get adequate assistance to fully inspect all skin folds as pressure ulcers may develop beneath folds of skin, in locations where tubes have been compressed or where compression has occurred by tissue with a high adiposity (fat).

- Use pillows or other positioning devices to offload pannus (apron) or other large skin folds and prevent skin-on-skin pressure.
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Do not use a pressure ulcer classification system to describe tissue loss in wounds other than pressure ulcers.

Do not classify pressure ulcers on mucous membranes.

What recommendations can be put in place to ensure the Classification of Pressure Ulcers is correctly performed?

- Use EPUAP/NPUAP pressure ulcer classification system to document the level of tissue loss. Confirm the reliability of classifications among the professionals responsible for classifying pressure ulcers.
- Educate professionals about special assessment techniques to be used in darkly pigmented individuals.
- Educate professionals on differentiating pressure ulcers from other types of wounds (e.g. venous ulcers, arterial ulcers, neuropathic ulcers, incontinence-associated dermatitis/moisture lesions, skin tears and intertrigo).
- Educate professionals about the appropriate use of the classification system and the appearance of different tissue types at common pressure ulcer sites.

Assessment

Complete an initial assessment of the individual with a pressure ulcer, to include:

- A complete health / medical and social history.
- The individual’s and family’s goals of care (If the individual is unable to participate, consult with family and/or significant others).
- A focused physical examination that includes:
  - Factors that may affect healing (e.g. impaired perfusion, impaired sensation, systemic infection)
  - Vascular assessment in the case of extremity ulcers (e.g. physical examination, history of claudication and ankle-brachial index or toe pressure)
  - Laboratory tests and x-rays as needed
- Nutritional assessment.
- Pain related to pressure ulcers.
- Risk for developing additional pressure ulcers.
- Psychological health, behaviour and cognition.
- Social and financial support systems.
- Functional capacity, particularly in regard to positioning, posture, the need for assistive equipment and personnel.
- The employment of and adherence to pressure relieving manoeuvres.
- Functional capacity, particularly in regard to positioning, posture, the need for assistive equipment and personnel.
- The employment of and adherence to pressure relieving manoeuvres.
- Integrity of seating and bed surfaces (wear and tear).
- The individual’s / family member’s knowledge and belief about developing and healing pressure ulcers.
- Teach the individual and his/her family about the normal healing process and keep them informed about progress (or lack of progress) toward healing, including signs and symptoms that should be brought to the professional’s attention.
- Reassess the individual if the ulcer does not show signs of healing as expected despite adequate local wound care, pressure redistribution and nutrition.
- Expect some signs of healing in most individuals within 2 weeks.
- Adjust expectations in the presence of multiple factors (particularly un-modifiable factors) that impair wound healing (e.g. persistent under nutrition, poor perfusion and co-morbidities known to impair wound healing).
What recommendations can be put in place to improve pressure ulcer assessment?

- Assess the pressure ulcer initially, document and re-assess at least weekly.
- With each dressing change, observe the pressure ulcer for developments that may indicate the need for a change in treatment (e.g. wound improvement, wound deterioration, more or less exudate, signs of infection, or other complications).
- Assess and accurately document physical characteristics such as location, category, size, tissue type(s), wound bed and periwound condition, wound edges, sinus tracts, undermining, tunneling, exudate, necrotic tissue, odour, presence/absence of granulation tissue and epithelialisation.
- Position the individual in a consistent (documented) neutral position for wound measurement. Select a uniform, consistent method for measuring wound length, width and depth to facilitate meaningful comparisons of wound measurements across time. Care should be taken to avoid causing injury when probing the depth of a wound bed or determining the extent of undermining or tunneling.
- Use weekly pressure ulcer assessment findings to plan interventions that will best promote healing for the current status of the ulcer.
- Assess progress toward healing:

**Nutrition**

Screen and assess nutritional status for each individual with a pressure ulcer at admission, with each condition change and when progress toward pressure ulcer closure is not observed.

Refer all individuals with a pressure ulcer to the dietician for early assessment of and intervention for nutritional problems.
What recommendations can be put in place to optimise nutrition and hydration?

- Assess weight status for each individual to determine weight history and significant weight loss from usual body weight (> 5% change in 30 days or > 10% in 180 days).
- Assess the individual’s ability to eat independently.
- Assess the adequacy of total nutrient intake (food, fluid, oral supplements, enteral / parenteral feeds).
- Provide sufficient calories, 30-35 kcalories/kg body weight for individuals under stress with a pressure ulcer. Adjust formula based on weight loss, weight gain, or level of obesity. Individuals who are underweight or who have had significant unintentional weight loss may need additional kcalories to cease weight loss and/or re-gain lost weight.
- Revise and modify (liberalise) dietary restrictions when limitations result in decreased food and fluid intake. These adjustments are to be managed by a dietitian or medical professional.
- Provide enhanced foods and/or oral supplements between meals if needed.
- Consider nutritional support (enteral or parenteral nutrition) when oral intake is inadequate. This must be consistent with the individual’s goals.
Assess all individuals, including neonates and children, for pain related to a pressure ulcer or its treatment using an appropriate validated scale. An assessment of pain should include an assessment of body language and non-verbal cues (e.g. change in activity, loss of appetite, guarding, grimacing and moaning).

What recommendations can ensure effective management of pain?

- Use a hoist or transfer sheet to minimise friction and/or shear when repositioning an individual, keeping bed linens smooth and unwrinkled.
- Position the individual off the pressure ulcer whenever possible. Avoid postures that increase pressure and discomfort.
- Minimise pressure ulcer pain by handling all wounds gently.
- Organise care delivery to ensure that it is coordinated with pain medication administration and that minimal interruptions follow. Set priorities for treatment.
- Encourage individuals to request a “time out” during any procedure that causes pain.
- Reduce pressure ulcer pain by keeping the wound bed covered and moist, and using a non-adherent dressing. (Note: stable dry eschar is usually not moistened).
- Use dressings less likely to cause pain and/or those likely to require less frequent dressing changes.
- For an individual with pain from a pressure ulcer, music, meditation, distraction, conversations and guided imagery are sometimes beneficial.
This section addresses support surface recommendations:

**For individuals with existing pressure ulcers.**

Refer to the Support Surfaces section in the Prevention Guidelines for information on prevention of additional pressure ulcers and general guidance on positioning.

Support surfaces alone neither prevent nor heal pressure ulcers. They are to be used as part of a total program of prevention and treatment.

When pressure ulcers deteriorate, or fail to heal, the professional should consider replacing the existing support surface with one that will improve pressure redistribution and microclimate (heat and moisture control) for the individual. Changing the support surface is only one of several strategies to consider. The individual and his/her pressure ulcer should be re-evaluated. Preventive interventions and local wound care should also be intensified as needed. A significant increase in risk status may also prompt such re-evaluation of the individual and the support surface.

**What recommendations can be put in place to optimise pressure relief?**

- Provide a support surface that is properly matched to the individual’s needs for pressure redistribution, shear reduction, comfort and microclimate (heat and moisture) control.
- Do not position an individual directly on a pressure ulcer. If pressure over the area cannot be relieved by repositioning, or if there are pressure ulcers on multiple turning surfaces, evaluate the individual and provide a support surface properly matched to his/her needs, considering the following factors:
  - Number, severity, and location of the pressure ulcer(s).
  - Risk for additional pressure ulcers.
  - Need for additional features, such as ability to control moisture, temperature and friction / shear.
  - Aim to keep the individual off the pressure ulcer(s) as much as possible.
• Consider higher specification foam or similar non-powered pressure redistribution mattresses and cushions for individuals with Category / Grade 1 and 2 pressure ulcers.

• Replace the existing mattress with a support surface that provides better pressure redistribution, shear reduction and microclimate control for the individual if he/she:
  • Cannot be positioned off of the ulcer or has pressure ulcers on 2 or more turning surfaces (e.g. the sacrum and trochanter), limiting turning options.
  • Fails to heal or demonstrates ulcer deterioration despite appropriate comprehensive care.
  • Is at high risk for additional ulcers.
  • “Bottoms out” on the existing support surface.

• Before replacing the existing mattress and/or cushion, evaluate the effectiveness of previous and current prevention and treatment plans, and set treatment goals consistent with the individual’s goals, values and lifestyle.

• Choose a support surface that is compatible with the care setting.

• Verify that the support surface is still functioning to its original intended specifications before using it for an individual with an existing pressure ulcer.

• Identify and prevent potential complications of support surface use, such as power failure, fatigue and ineffective functioning when bed angles are too acute. Daily manual check on all positioning.

• Evaluate the appropriateness and functionality of the support surface on every encounter.

• Choose positioning devices and incontinence pads that are compatible with the support surface.

  Limit the amount of linen and pads placed on the bed and/or chair.

• Continue to reposition the individual regardless of the support surface in use. Establish repositioning frequency based on the characteristics of the support surface and the individual’s response.

• Inspect the skin for additional damage each time the individual is turned or repositioned. Allow 20-30 minutes for redness to disperse.

• Do not turn the individual onto a body surface that is damaged or still reddened from a previous episode of pressure loading, especially if the area of redness does not blanch (i.e. Category/Grade I).

• Limit head-of-bed elevation to 30° unless contraindicated by medical condition.

• Encourage individuals to sleep in a 30° to 40° side-lying position or flat in bed if not contraindicated.

• Avoid prolonged head-of-bed elevation and a slouched position that places pressure and shear on the sacrum and coccyx.

• Use transfer aids to reduce friction and shear. Do not drag the individual while repositioning.

• Do not leave moving and handling equipment under the individual after use.

• Do not leave the individual on a bedpan longer than necessary.

• Do not use ring or doughnut shaped devices.

• Do not apply heating devices (e.g. hot water bottles, heating pads, built-in bed warmers) directly on pressure ulcers. Heat increases the metabolic rate, induces sweating and decreases the tolerance of the tissue for pressure.

• Give training to individuals where appropriate on the importance of small regular repositioning that they can perform themselves.
Seating

- If sitting in a chair is necessary for individuals with Category/Grade III and IV pressure ulcers on the sacrum/coccyx or ischia (buttock), limit sitting to three times a day in periods of 60 minutes or less.
- Consult a seating specialist to prescribe an appropriate seating surface and/or positioning techniques to avoid or minimise pressure on the ulcer. Re-evaluate the seating surface and the individual's posture if pressure ulcers worsen or fail to improve on the seating surface selected.
- Ensure that the feet are properly supported either directly on the floor, on a footstool, or on footrests when sitting (upright) in a bedside chair or wheelchair.
- Avoid seating an individual with an ischial (buttock) ulcer in a fully erect posture.
- Consider periods of bed rest to promote ischial and sacral ulcer healing.
- Develop a schedule for progressive sitting according to the individual's tolerance and pressure ulcer response.
- Select a cushion that effectively redistributes the pressure away from pressure ulcer.
- Determine the effects of posture and deformity on pressure distribution.
- Consider mobility and lifestyle needs in selecting support surfaces.

Heels

- Relieve pressure under the heel(s) by placing legs on a pillow to “float the heels” off the bed or by placing the leg in a device with heel suspension that completely offloads the pressure ulcer.
- Apply any devices according to the manufacturer’s instructions.
- Ensure that the device is not too tight and does not create additional pressure damage.
- Check device placement more frequently in individuals with neuropathy, peripheral arterial disease, lower-extremity oedema and those who are likely to develop oedema.
- Remove the device periodically to assess skin integrity.
What recommendations can be put in place:

To optimise wound management?

Pressure Ulcer Cleansing
Consider using cleansing solutions with surfactants to clean pressure ulcers with debris, confirmed infection, suspected infection, or suspected high levels of bacterial colonisation.

Debridement of Pressure Ulcers

**DO NOT DEBRIDE STABLE, HARD, DRY ESCHAR IN ISCHAEMIC LIMBS**

Heels
- 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.
- Perform a thorough vascular assessment prior to debridement of lower extremity pressure ulcers
- (e.g. rule out arterial insufficiency).
- Assess wound daily for signs of erythema, tenderness, oedema, purulence, fluctuance, crepitance, and/or malodour (i.e. signs of infection) and consult an appropriate medical professional urgently in the presence of any of these symptoms. Urgent debridement may be considered in the presence of the above symptoms if consistent with the individual’s wishes and overall goals of care.

General Recommendations
- Debride devitalised tissue within the wound bed or edge of pressure ulcers when appropriate to the individual’s condition and consistent with overall goals of care.
- Select the debridement method(s) most appropriate to: the individual’s condition; goals of care; ulcer/periulcer status; type, quantity, and location of necrotic tissue; care setting; and professional accessibility/capability.
- Use autolytic and/or biosurgical methods of debridement when there is no urgent clinical need for drainage or removal of necrotic tissue.
- Consider the need for surgical debridement in the presence of advancing cellulitis, crepitus, fluctuance and/or sepsis secondary to ulcer-related infection.
Dressings for Pressure Ulcers

The selection of the wound dressing should be based on the tissue in the ulcer bed, the condition of the skin around the ulcer bed and the goals of the person with the ulcer. Generally maintaining a moist ulcer bed is the ideal when the ulcer bed is clean and granulating to promote healing or closure. The type of dressing may change over time as the ulcer heals or deteriorates. Refer to the Local Clinical Practice Guideline for a more complete description of all dressing types as well as discussion of indications and contraindications for their use.

- Assess pressure ulcers at every dressing change and confirm the appropriateness of the current dressing regime.
- **Select a dressing from the local formulary** which is suitable for the type of tissue present in the ulcer wound bed and follow manufacturer recommendations for use.
- The plan of care should guide usual dressing wear times and contain provisionary plans for dressing changes as needed (for family, the individual, and staff) due to soilage and loosening, etc.

Negative Pressure Wound Therapy (NPWT) for Pressure Ulcers

**Do not use NPWT in individuals with untreated osteomyelitis**

- Consider NPWT Therapy as an early adjuvant for the treatment of deep, Category / Grade III and IV pressure ulcers.
- Debride the pressure ulcer of necrotic tissue prior to the use of NPWT Therapy.
- Follow a safe regime in applying and removing the NPWT system.
- Evaluate the pressure ulcer with each dressing change.
- If pain is anticipated or reported, consider placing a non-adherent interface dressing on the wound bed, lowering the level of pressure and/or changing the type of pressure (continuous or intermittent).
- Educate the individual and his/her family about NPWT when used in the home setting.
- Offload ulcer site and observe for new pressure damage when bridging or tubing is used.
Infection

Follow Local Wound Management Guidelines on the assessment, diagnosis and treatment of infection.

Follow local infection-control policies to prevent self-contamination and cross-contamination in individuals with pressure ulcers

- Infection is not common in Category / Grade I or II ulcers, assessment of infection should focus on Category / Grade III and IV ulcers.
- Infection may spread beyond the pressure ulcer, resulting in serious systemic infections such as cellulitis, fasciitis, osteomyelitis, systemic inflammatory response syndrome (SIRS), or sepsis.
- To avoid these serious consequences, professionals should focus on identification of high-risk individuals, prevention, early detection and prompt, effective treatment of pressure ulcer infection.

Surgery for Pressure Ulcers

These recommendations focus on the care of the individual and not on specific surgical techniques, decisions are better left to an experienced surgeon who has an understanding of the unique needs of the patient.

What recommendations can be put in place?

- Evaluate the need for surgical consultation for operative repair in individuals with Category / Grade III or IV pressure ulcers that are not closing with conservative treatment, or for individuals who desire more rapid closure of the ulcer.
- Confirm the individual’s end-of-life preferences if anticipating surgery.
- Obtain a surgical consultation for possible urgent drainage and/or debridement if the pressure ulcer has advancing cellulitis or is a suspected source of sepsis.
- Assess for osteomyelitis. If present, infected bone must be resected prior to or during surgical closure.
- Prior to surgery, optimize physical and psychosocial factors that may impair surgical wound healing.
- Confirm the presence of a positive social network at home.
- Initiate a program of progressive sitting according to the surgeon’s orders. When weight bearing on the operative site is allowed, weight bearing should be graduated and progressive. Sitting should increase in time if no erythema is noted over weight-bearing areas.
- Skin tolerance to pressure over the wound site should be assessed after each sitting period.
- Position the individual only on a pressure-redistributing chair cushion when he/she is sitting in a chair.
Special Populations

These recommendations address the unique needs of critically ill, spinal-cord-injured, and bariatric individuals, in relation to pressure redistribution, shear reduction and microclimate control.

Critically Ill Individuals

Continued use of lateral rotation may be necessary for individuals in respiratory distress. In all cases, the risks and benefits of continued lateral rotation should be weighed in individuals with existing pressure ulcers.

What recommendations can be put in place?

- Consider alternative methods of pressure redistribution (or avoid lateral rotation beds) in individuals with sacral or buttock pressure ulcers.
- Offload the pressure ulcer(s) in individuals undergoing lateral rotation therapy.
- Inspect the pressure ulcer and the periulcer skin for shear injury with every dressing change.
- Shear injury may appear as deterioration of the ulcer edge, undermining and/or as increasing inflammation of periulcer skin or the ulcer.

Spinal-Cord-Injured Individuals and Other Wheelchair Dependant Individuals

Ideally, ischial ulcers should heal in an environment where the ulcers are free of pressure and other mechanical stress. Total bedrest may be prescribed to create a pressure free wound environment. However, this approach comes with potential physical complications (e.g. muscle wasting, deconditioning, respiratory complications), psychological harm, social isolation and financial challenges for the individual and his/her family.

Balancing physical, social, and psychological needs against the need for total offloading (i.e. total bedrest) creates a challenging dilemma for the individual and the professional. Use of a wheelchair is imperative for spinal-cord-injured individuals. Sitting time may need to be restricted when ulcers are present on sitting surfaces. Seating cushions must be high immersion, uniform loading distribution cushions.
What recommendations can be put in place?

- Refer individuals to a seating professional for evaluation if sitting is unavoidable.
- Seat spinal-cord-injured individuals with ischial (buttock) ulcers on a seating support surface that provides contour, uniform pressure distribution and high immersion or offloading.
- Consider periods of bed rest to promote ischial and sacral ulcer healing.
- Limit sitting time for spinal-cord-injured individuals with ischial ulcers according to skin tolerance and pressure ulcer response.
- Develop a schedule for progressive sitting according to the individual’s tolerance and pressure ulcer response.
- Maintain proper positioning and postural control.

Bariatric (Obese) Individuals

Get adequate assistance to fully inspect all skin folds. Pressure ulcers may develop in unique locations, such as beneath folds of skin and in locations where tubes and other devices have been compressed between skin folds but may also result from tissue pressure across the buttocks and other areas of high adipose (fat) tissue concentration.

What recommendations can be put in place?

- Assess pressure ulcers carefully for signs of infection and delays in healing, which are more common in bariatric individuals.
- Provide adequate nutrition to support healing. Obese individuals may lack adequate nutrients to support healing of pressure ulcers. Goals of weight loss may need to be postponed or modified to ensure that adequate nutrients are provided for healing (see Nutritional Section).
Individuals Receiving Palliative Care

Pain management, odour control and exudate control are the aspects of pressure ulcer care that tend to be most closely related to supporting the individual’s comfort.

**What recommendations can be put in place?**

- Set treatment goals consistent with the values and goals of the individual, while considering family input.
- Assess the impact of the pressure ulcer on quality of life for the individual and his/her family.
- Set a goal to enhance quality of life, even if the pressure ulcer cannot be healed or treatment does not lead to closure/healing.
- Assess the individual initially and with any significant change in condition, re-evaluate the plan of care.
- Assess the pressure ulcer initially and with each dressing change, at least weekly (unless the individual is actively dying) and document findings.
- Monitor the ulcer in order to continue to meet the goals of comfort and reduction in wound pain, addressing wound symptoms, such as, odour and exudate.
- Manage the pressure ulcer and periwound area on a regular basis as consistent with the individual’s wishes.