Evidence-based guidelines for pressure ulcer management at the end of life

Diane Langemo, Emily Haesler, Wayne Naylor, Aletha Tippett and Trudie Young

Abstract

It is important to develop an individualised plan of care for people at the end of life to prevent pressure ulcers, and to treat them if they do occur. This article discusses patient and risk assessment, prevention and care for pressure ulcers for the palliative care patient and the recommendations given in the palliative care section of the *Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline* (National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance, 2014).

Key words: Pressure ulcer ● Palliative care ● Wound care ● Guidelines

This article has been subject to double-blind peer review.

Individuals in the palliative care setting often have multiple comorbidities and risk factors, and are at high risk of pressure ulcer development (Langemo, 2006; Langemo and Black, 2010), while others enter the palliative setting with an existing pressure ulcer. In this setting, the usual goal and plan of care is to intervene with attempts to prevent pressure ulcer development, and if the individual has an existing pressure ulcer, to maintain and/or achieve progress towards wound closure and comfort for the individual.

It is, unfortunately, often overlooked that skin is the largest organ of the body and can fail along with the other organs (Langemo, 2006; Langemo and Brown, 2006; Sibbald et al, 2009). When vital organs are failing, expecting the skin ulcer to heal is generally unrealistic (Langemo, 2006; Langemo and Brown, 2006). People at the end of life are at moderate to high risk for developing soft-tissue ulceration (De Conno et al, 1991; Hanson et al, 1994; Chaplin, 2000; Sibbald et al, 2011). Literature is replete with reports that health care professional consensus is that pressure ulcers occurring at the end of life are often unavoidable, largely attributable to the individual's frail, compromised condition (Tippett, 2005; Langemo, 2006; Kayser-Jones et al, 2008; Langemo and Black, 2010). Education of the individuals and their family along with question and answer sessions with the patient, family, physician and other health professionals will help clarify and establish the goal(s) of care desired by the individual and the significant other(s).

Goals of palliative care with regard to presure ulcers are to prevent wounds as much as possible, stabilise and, if possible, achieve progress toward closure, as well as manage related symptoms to enhance individual comfort, wellbeing and quality of life (Langemo and Black, 2010; Nenna, 2011).

This article presents highlights of the guideline recommendations based on the 2014 International Pressure Ulcer Prevention and Treatment Guideline (National Pressure Ulcer Advisory Panel (NPUAP) et al, 2014). The guidelines are a revision and expansion of the 2009 guidelines (NPUAP and EPUAP, 2009). Nearly one-third of the guidelines are new and 222 recommendations are included. Guidelines statements/recommendations are based on evidence and bear both a strength of evidence and strength of recommendation rating.

Strength of evidence

The guidelines (NPUAP et al, 2014) assign a strength of evidence to the studies included based on study design and quality. Level 'A' was assigned to recommendations supported by direct scientific evidence from properly designed and implemented controlled trials on pressure ulcers in humans (or humans at risk of pressure ulcers), providing statistical results that consistently support the recommendation. Level 'B' was given to recommendations supported by direct scientific evidence from properly designed and implemented clinical series on pressure ulcers in human (or humans at risk of pressure ulcers) providing statistical results that consistently support the recommendation. Level 'C' was assigned to a recommendation supported by indirect evidence (e.g. studies in healthy humans, humans with other types of chronic wounds, animal models) and/or expert opinion. A consensus voting

Diane Langemo, Consultant, Langemo and Associates, Registered Nurse, College of Nursing, University of North Dakota, US; **Emily Haesler,** PhD Student and Visiting Fellow, Academic Unit of General Practice, The Canberra Hospital, Australia; **Wayne Naylor,** Director of Nursing, Hospice Waikato, New Zealand; **Aletha Tippett,** President, Hope of Healing Foundation, Cincinnati, US; **Trudie Young,** Director of Education and Training Welsh Wound Innovation Centre, Rhondda Cynon Taff, Wales

Correspondence: ***Dianne Langemo*** dianelangemo@aol.com

'In the individual receiving palliative care, skin changes may indicate early or progressive pressure damage ...'

process involving the experts engaged in the guideline development was then used to assign a strength of recommendation indicative of the confidence the health professional can have that the recommended practice will improve patient outcomes (i.e. do more good than harm). Strength of recommendation can be found in the Quick Reference Guide. Two thumbs up was a strong positive recommendation, one thumb up was a weak positive recommendation, a horizontal thumb meant no recommendation, one thumb down equated to a weak negative recommendation, while two thumbs down was a strong negative recommendation (i.e. definitely do not use this recommendation in clinical practice). The Quick Reference Guide is available as a free download at *www.npuap.org, www.epuap.org, www.awma.com.au* or *www.internationalguideline.com.*

Patient assessment

The international pressure ulcer guideline (NPUAP et al, 2014) highlights the importance of conducting a comprehensive assessment of the individual receiving palliative care (strength of evidence=C). This assessment should include assessment of the individual, pressure ulcer risk and, if already present, an assessment of areas of existing skin breakdown. Assessment should also include comorbid health problems, medications, diagnostic test results and psychosocial implications (Chaplin, 2000; NPUAP et al, 2014). Nutritional status, skin condition, mobility and continence are all important factors to assess that are discussed below.

Risk assessment

Nearly all individuals in palliative care are at risk of pressure ulcer development, thus a risk assessment must be carried out. The guideline (NPUAP et al, 2014) includes a chapter on pressure ulcer risk factors that includes the principles of conducting a risk assessment in any clinical setting and population. Health professionals are alerted that the most important component of a risk assessment is using clinical judgment to consider the impact on the individual of factors that are shown in multivariable analyses to have an influence on overall risk for development of a pressure ulcer (strength of evidence=C). Considering the progressive deterioration experienced by individuals receiving palliative care, including end-stage failure of the skin (Langemo and Brown, 2006) ongoing regular assessment of pressure ulcer risk should be conducted (NPUAP et al, 2014). The Marie Curie Centre Hunters Hill Risk Assessment Tool (Chaplin, 2000), which adds an additional subscale of activity in bed to the well-recognised Braden Scale (Chaplin and McGill, 1999), is recommended as a tool that can be used in conjunction with clinical judgment to conduct a comprehensive pressure ulcer risk assessment in individuals receiving palliative care (strength of evidence=C) (NPUAP et al, 2014).

Individuals receiving palliative care are likely to have multiple risk factors that influence both the mechanical boundary conditions defined in parentheses (type, magnitude, time and duration of the mechanical load applied to skin and tissues) and the susceptibility and tolerance of the individual to pressure and shear (individual mechanical properties, geometry of the body, physiology, repair and transport of nutrients and wastes and thermal properties of the tissues) (NPUAP et al, 2014). Specifically, characteristics identified as being strongly associated with pressure ulcer risk—mobility limitations (strength of evidence=B), alterations to skin status (strength of evidence=B) and alterations to tissue perfusion (strength of evidence=C)—are all considerations that are of direct concern for individuals receiving palliative care (NPUAP et al, 2014).

Immobility

Immobility is considered a necessary factor for the development of a pressure ulcer. In the absence of mobility limitations (i.e. being bed or chair-bound), other risk factors should not lead to pressure ulcers (NPUAP et al, 2014). Epidemiological studies consistently identify the significance of immobility to pressure ulcer risk (NPUAP et al, 2014). An individual receiving palliative care who is restricted to a bed or chair should be identified as having some level of pressure ulcer risk, and a more comprehensive pressure ulcer risk assessment should be undertaken (strength of evidence=C). Immobility may be identified and assessed using a range of strategies including use of a mobility subscale on a risk assessment tool (Lindgren et al, 2004; Tescher et al, 2012), or an assessment of the individual's ability to engage in activities of daily living (ADL) that are associated with mobility and activity (Sayar et al, 2009; Bergquist-Beringer and Gajewski, 2011).

Existing alterations to the individual's skin status are also a strong risk factor for pressure ulcer development in any population (strength of evidence=B) (NPUAP et al, 2014). A pre-existing category I pressure ulcer is a strong predictive factor for additional pressure ulcers (strength of evidence=B) (Defloor and Grypdonck, 2005).

Alterations to skin and tissue perfusion

Alterations to skin and tissue perfusion are consistently shown in epidemiological studies to increase the risk of pressure ulcers (strength of evidence=C). While the international guideline (NPUAP et al, 2014) identifies general conditions (e.g. diabetes, vascular disease, alterations in blood pressure) that have predictive value in determining pressure ulcer risk associated with alterations to tissue perfusion, individuals receiving palliative care can be assumed to have tissue perfusion alteration arising from their end-stage condition. Skin changes that are frequently observed at the end of life predispose the individual in palliative care to a higher pressure ulcer risk. Shunting of blood away from the skin in order to preserve the function of vital organs reduces skin and tissue perfusion and oxygenation, (Langemo and Brown, 2006; Sibbald et al, 2009) leading to diffuse skin and tissue damage, particularly over areas subjected to pressure (Langemo and Brown, 2006). Decreased skin temperature, mottled discoloration and skin necrosis are commonly observed outcomes of reduced skin and tissue perfusion (Sibbald et al, 2009).

Nutritional status

Poor nutritional status and increased skin moisture are identified in the guideline as factors that impact the risk of pressure ulcer development in all populations (strength of evidence=C), and are likely to be of specific relevance to individuals receiving palliative care. Indicators of nutritional status that are shown to be significant indicators of pressure ulcer risk include food intake records, (Okuwa, et al, 2006; NPUAP et al, 2014) and weight records (Coleman et al, 2013; Cremasco et al, 2013). Other indicators of poor nutritional status include low haemoglobin, low serum albumin and pre-albumin and low protein intake (Langemo and Brown, 2006). Monitoring weight can also be helpful.

Additional risk factors

Measures of excessive skin moisture that are outlined in the guideline as significant indicators of pressure ulcer risk include presence of fecal incontinence, double incontinence, presence of an indwelling urinary catheter and physical presence of moisture (NPUAP et al, 2014). Advanced age, alterations to sensory perception, body temperature and general and mental health status are also identified as risk factors that can potentially impact an individual's risk for pressure ulcers (strength of evidence=C) (NPUAP et al, 2014). However, the overall deteriorating health status of the individual receiving palliative care underpins the ongoing influence of each of the risk factors discussed above, and should be considered significant to this population.

Skin assessment and care

Skin failure is a recognised end of life concept (Langemo and Brown, 2006; Sibbald et al, 2009). The condition of the skin and underlying tissue can be an early sign of pressure damage (NPUAP et al, 2014). In the individual receiving palliative care, skin changes may indicate early or progressive pressure damage, but may also indicate end-stage skin failure and reduction in skin and tissue perfusion as vital organ function is preserved. In skin failure, there is both a general and local reduction in vascularity eventually leading to ischaemia and tissue death. This can manifest as pressure damage in the tissues in the presence of pressure and/or shear. The pressure ulcer guideline notes that preventive skin care and maintenance of skin integrity are essential if pressure ulcers are to be prevented (NPUAP et al, 2014).

A comprehensive whole body assessment of the skin's integrity, noting objective changes that may relate to the individual's end of life status, should be conducted, documented and used to develop and evaluate appropriate and realistic interventions that uphold the individual's goals of care (Sibbald et al, 2009). Skin assessment includes assessment of skin discoloration, temperature, oedema and changes to tissue consistency (strength of evidence=B) and any localised pain (strength of evidence=C) (NPUAP et al, 2014). The guideline recommends that the frequency of skin assessments should generally be increased in response to physical deterioration of the individual (strength of evidence=C) (NPUAP et al, 2014). However, one can realistically anticipate that the individual receiving palliative care will have ongoing deterioration, and frequency of skin assessments should be driven by the individual's wishes and meeting of realistic care goals. Skin assessments could be incorporated into other care activities, including repositioning, in order to minimise disruption to comfort.

Skin care

The skin should be inspected for erythema, especially over bony prominences, during repositioning and care activities (strength of evidence=C) using the finger or disc method (strength of evidence=C), and the cause of any erythema should be differentiated (strength of evidence=C). If, on examination, erythema is present on the skin, it is essential to avoid positioning the indi-

'More frequent position changes may be possible with the use of opiates and/or sedatives to control pain.'

'The pressure ulcer guideline notes that preventive skin care and maintenance of skin integrity are essential if pressure ulcers are to be prevented ...'

vidual on the area (strength of evidence=C). This will provide the skin with respite from further loading on the vulnerable areas. If an area is at risk of pressure damage, do not massage or rub the vulnerable skin vigorously as this can cause further trauma (strength of evidence=C).

The normal pH of the skin is 4 to 6.5, which is referred to as the protective 'acid mantle' of the skin (Anathapadmanabhan et al, 2004). The skin should be kept clean and dry and pH balanced skin cleansers should be used to prevent excessive dryness and irritation to the skin (Anathapadmanabhan et al, 2004) (strength of evidence=C). When drying the skin after cleansing, it is advised to use soft fabrics (towels) and ensure the skin folds are dried thoroughly. If the skin is cleansed too frequently, it will lose sebum and oils from its surface, interrupting the epidermis and stratum corneum, and resulting in dryness and irritation (Anathapadmanabhan et al, 2004). Dry skin is uncomfortable and has a propensity to crack and break. Emollients should be used to rehydrate dry skin (strength of evidence=C); however dimethyl sulfoxide (DMSO) cream should not be used for the prevention of pressure ulcers (NPUAP et al, 2014) (strength of evidence=B).

The skin can be damaged by prolonged contact with urine and feces, as well as exudate and perspiration. The resulting excess moisture and chemical irritation from enzymes can cause incontinence-associated dermatitis (Doughty et al, 2012). If incontinence is present, a continence assessment should be conducted and an individualised continence management plan devised (strength of evidence=C). This should include the appropriate use of barrier products to protect the skin from excessive moisture (strength of evidence=C). The skin should be cleansed as promptly as possible after each episode of incontinence, prior to the application of the barrier product (strength of evidence=C). Incontinence devices such as catheters have the potential to cause medical device-related pressure damage, and after many days in place, can contribute to urinary tract infections (NPUAP et al, 2014). Fecal incontinence management products can be helpful but can also cause pressure-related injuries (Black et al, 2013).

Pressure redistribution

As well as impacting on quality of life (Alvarez, et al, 2002), immobility is a key risk factor associated with pressure ulcer development (NPUAP et al, 2014). This risk is increased when immobile individuals are too weak to turn or reposition themselves, are experiencing pain and discomfort on movement, or when they are unaware of the need to move about in bed.

Many individuals receiving palliative care prefer a single position for comfort, and turning and positioning might only serve to increase pain and discomfort (Alvarez et al, 2002; Langemo, 2006). When an individual is actively dying, interventions to prevent and/or treat a pressure ulcer are often superseded by the need to promote comfort by minimising turning and repositioning and allowing the individual to determine frequency of turning and choice of position (Langemo, 2006). This should not, however, lead to poor care, as infrequent repositioning due to inadequate staffing can contribute to pressure ulcer formation and reduced healing rates in terminally ill individuals (Kayser-Jones et al, 2008).

There is very good evidence from randomised controlled trials to support repositioning all at-risk individuals and those with existing pressure ulcers, unless contra-indicated (Strength of evidence=A) (Moore et al, 2015; Vanderwee et al, 2009). For individuals receiving palliative care it is recommended that they should be repositioned and turned at periodic intervals, in accordance with the individual's wishes, comfort and tolerance (strength of evidence=C). In all cases, it is important to establish a flexible, individualised repositioning schedule based on:

- The individual's goals, wishes, comfort and tolerance
- Pressure redistribution characteristics of the support surface
- The individual's current clinical status
- The combination of comorbid conditions, as medically feasible.

The repositioning schedule, and factors influencing this (e.g. the individual's wishes) should be clearly documented (strength of evidence=C).

In addition to the individual's clinical condition, it is also recommended that repositioning frequency is determined with consideration to the support surface in use (strength of evidence=C). Defloor et al (2005) suggest that an appropriate repositioning frequency would be at least every 4 hours for individuals cared for on a pressure redistributing mattress (e.g. viscoelastic foam) or every 2 hours when a regular mattress is in use (strength of evidence=B). Changing the support surface to improve pressure redistribution and comfort, such as providing a high-specification mattress or bed, can reduce the requirement for more frequent repositioning, thereby promoting comfort (strength of evidence=C).

More frequent position changes may be possible with the use of opiates and/or sedatives to control pain. However, it is important to evaluate

the pros and cons of medication administration, as it can lead to a reduction in spontaneous movements from sedation. This may be supportive of or counter to appropriate cancer pain relief and promotion of comfort, depending on the individual (NPUAP et al, 2014) and ultimately can contribute to increased pressure on tissues. An individualised, patient-directed approach is in order. The following recommendations are a guide to repositioning in individuals receiving palliative care who are immobile and require pressure ulcer prevention:

- Pre-medicate the individual 20–30 minutes prior to a scheduled position change for individuals who experience significant pain on movement (strength of evidence=C)
- Consider the individual's choices in turning, indicating whether she or he has a position of comfort, after explaining the rationale for turning (strength of evidence=C)
- Consider changing the support surface to improve pressure redistribution and comfort, such as providing a high-specification mattress or bed (strength of evidence=C)
- Strive to reposition an individual receiving palliative care at least every 4 hours on a pressure redistributing mattress, such as viscoelastic foam, or every 2 hours on a regular mattress (strength of evidence=B)
- Document turning and repositioning, as well as the factors influencing these decisions (e.g. individual wishes or medical needs) (strength of evidence=C).

Nutrition and hydration

It is important to maintain adequate nutrition and hydration, to the extent possible, as 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 (strength of evidence=C). Nutritional protein supplements should be offered when ulcer healing is the goal (strength of evidence=C). Adequate fluid intake and maintenance of serum protein levels are needed for wound healing, although this is not always achievable in the frail or elderly or in an individual at end-of-life (Alvarez et al, 2002; Bates-Jensen and MacLean, 2007). It is important to liberalise the diet to enhance food and fluid consumption (strength of evidence=C). Additional assistance at mealtimes is often required by individuals to prevent weight loss that may increase the risk of pressure injury and poor healing (Kayser-Jones et al, 2008).

The goal in palliative care is to provide comfort and minimise symptoms. If providing supplemental nutrition assists in providing comfort to the individual and is mutually agreed upon by the individual, family caregivers, and health-care provider, then supplemental nutrition (in any form) is very appropriate for palliative wound care. If the individual's condition is such that to provide supplemental nutrition (in any form) increases discomfort and the prognosis is expected to be poor, then providing supplemental nutrition should not be a concern and is not appropriate for palliative wound care. An individual receiving palliative care who does not have ulcer healing as a goal can be allowed to consume the type and amount of food and fluids as desired (Alvarez et al, 2002).

Pressure ulcer care

If skin failure occurs, then pressure ulceration may ensue and healing may or may not be possible in a palliative situation. In certain individuals for whom healing is not a reality, symptom control, i.e. odour, exudate and pain management will become the clinical priority in order to optimise the individual's quality of life. Therefore, the impact of the pressure ulcer on the individual's (and significant others') quality of life should be assessed (strength of evidence=C). Pressure ulcer management should be consistent with the values and goals of the individual and potentially the individual's significant others (strength of evidence=C). The goals should enhance the individual's quality of life in the presence or absence of the potential to heal (strength of evidence=C).

The planning of care should be based upon an initial assessment of the individual and establishing their goals of care. This should be repeated if there are any changes in the individual's condition and the care plan should be amended accordingly to reflect the changes (strength of evidence=C). The pressure ulcer should also be assessed initially and then at each dressing change, and subsequently at least weekly, unless death is imminent (strength of evidence=C). The pressure ulcer assessments will help to interpret if the goals in the care plan are being met by the wound care regimen and if the symptoms are being effectively managed (strength of evidence=C). As the individual's condition deteriorates and death approaches, their pressure ulcers may worsen, and in this situation less frequent assessment may help to minimise pain.

Wound odour is a very distressing symptom and impacts greatly on quality of life, causing feelings of embarrassment and/or depression and social isolation (Alvarez et al, 2002; NPUAP et al, 2014). The strategies to control wound odour should include removing the cause of the odour

'Treatment should always be given prior to dressing changes, and then as needed throughout the day and night.'

'The skin can be damaged by prolonged contact with urine and feces, as well as exudate and perspiration.'

(bacteria growth and non-viable tissue) and its impact on the environment (strength of evidence=C). Regular assessment, cleansing, debridement and management of infection will help to manage malodour (strength of evidence=C). If anaerobic bacteria and protozoal organisms (trichomonas) are causing the malodour, consider using topical metronidazole gel or crushed tablets topically to control the odour that is associated with these infections (strength of evidence=C) (NPUAP et al, 2014). A second intervention would be to use charcoal or activated charcoal dressings to help with the control of the odour by binding the odour molecules (strength of evidence=C). Environmental control of the odour can be achieved using commodities that either absorb or mask the odour i.e. activated charcoal, kitty litter, vinegar, vanilla, coffee beans, scented candles or potpourri (strength of evidence=C).

Moisture increases the susceptibility of tissue to friction, pressure, shear and breakdown (Coleman et al, 2013). Moisture lesions can be difficult to distinguish from pressure ulceration (especially category II pressure ulcers), therefore the clinician must ensure that the correct diagnosis is made, as each type of injury requires a different management plan (NPUAP et al, 2014). However, an individual may suffer from both moisture damage and pressure ulceration if incontinence and pressure are both present.

Although the guidelines offer specific advice, all pressure ulcer and peri-ulcer skin care should be managed on a regular basis, which should always be consistent with the individual's wishes (strength of evidence=C).

The importance of treating pain

Addressing pain in the individual in palliative care is focused on relieving symptoms, enhancing comfort, and improving quality of life. Treating generalised as well as wound pain is essential in providing good wound care. Pain can be detrimental as it interferes with the immune response, thereby negatively impacting the healing process, resulting in a delay of wound closure (Sussman and Bates-Jensen, 2012)

Pain assessment

When caring for a pressure ulcer palliatively, the patient is often elderly or at the end of life (Langemo, 2006; Langemo and Black, 2010). Many of these individuals may also be suffering the effects of dementia (National Consensus Project for Quality Palliative Care, 2009). It it important to know if a patient is in pain, and often it is possible to simply ask the patient about this. However, a full assessment including a validated pain assessment scale as well as a diagram of the location of the pain is preferable when possible. When the patient is unable to communicate, pain must still be assessed (strength of evidence=C). In this instance, one must observe behaviour including body language, facial expressions, vocalisations, breathing and consolability. The American Geriatric Society (AGS) cautions that some individuals exhibit little or no specific behaviors with pain, making identification and assessment of pain very difficult (AGS Panel, 2009). When the patient has a pressure ulcer, it is important to assume that they have pain (Sussman and Bates-Jensen, 2012).

Pressure ulcer pain results from tissue ischaemia caused by pressure and the resultant response by inflammatory mediators. There have been a number of studies about pressure ulcer pain and up to 84% of patients report pain at rest and during dressing changes (Sussman & Bates-Jensen, 2012). Unfortunately, in these studies, only 6% of patients with pain were receiving treatment for their pain.

Treatment of pain

Treatment of pain begins with proper assessment of the presence and degree of pain as well as the type and cause of the pain. The first step is to look at what has previously been used for the patient and what has been helpful. When considering how to treat for pain, the treatment options available are: systemic, topical, environmental and alternative (strength of evidence=C).

Systemic treatment

Systemic treatment refers to pharmacologic agents that act centrally. Following the World Health Organization (WHO) ladder for pain treatment (Connor and Sepulveda Bermedo, 2014) can be helpful in determining what agents to use. According to the WHO, pain is divided into three areas: mild, mild to moderate, and moderate to severe. For mild pain, non-opioids are recommended; for moderate to severe pain, the first-line recommended treatment is opioids. Opioids act directly on the central nervous system (CNS) to alter the individual's perception of pain. Opioids do not cause an inhibition of wound healing and there is no ceiling dose. If the patient is 'opioid naïve', small doses must be used cautiously, and WHO suggests possible adjuvant therapy with opioids. Non-steroidal anti-inflammatories (NSAIDs) are systemic adjuvant medication, but are not preferred because of potential gastrointestinal (GI) side-effects, inhibition of wound healing and interference with blood clotting. Treatment should always be given prior to

dressing changes, and then as needed throughout the day and night (Evans and Gray, 2005).

Topical treatment

Topical treatment includes substances applied directly to the wound and/or periwound area. Lidocaine, in the form of viscous lidocaine, can easily be added to the dressing or applied directly while at the bedside. At least two commercially available dressings contain lidocaine (Regenecare® and WoundPal®). Evidence exists for use of topical morphine (strength of evidence=B); however, availability may vary among countries.

Environmental treatment

Environmental treatments involve repositioning, support surface and dressing choice. Repositioning should be done for patient comfort, not necessarily routinely. A support surface should be used that 'floats' the patient, such as a static air device. A dressing should be used that does not cause injury to the skin and that ideally does not need frequent changing. However, since most pressure ulcers are on the sacrum (Tippett, 2005), frequent dressing changes may be necessary due to soiling. In the case of frequent changes, it is even more important to use a dressing that helps minimise pain and prevent maceration.

Alternative treatment

Alternative treatments include measures such as music, healing touch, massage, distraction, relaxation, and visual imagery (strength of evidence=C). It can be as simple as holding the patient's hand, or as advanced as cognitive behavioural therapy. Sometimes a therapy animal is helpful (e.g. a dog or cat). Electromagnetic therapy can also be useful for pain management and wound healing, but may or may not be helpful depending on the patient condition and location of the wound. Use the same type of pain assessments after administration of pain medications as used to assess presence and extent of pain.

Conclusion

All individuals at the end of life experience failure of some, and eventually all, organs including the skin, as the dying process progresses. The elderly comprise a large portion, but certainly not all, of this population.

'Older adults and elders residing in long term care settings represent an especially vulnerable population in which poor nutrition, immobility, loss of cognitive function, and incontinence often lead to unavoidable pressure ulcers' (Nenna, 2011: 361)

While the best care is provided to prevent pressure ulcers, sometimes they still develop. International evidence-based recommendations for prevention and treatment of pressure ulcers are highlighted in this article (NPUAP et al, 2014).

Prevention and treatment of pressure ulcers in individuals in palliative care includes completing a comprehensive multidisciplinary holistic assessment. This assessment will reveal values and wishes of the individual and his/her family, and provide information to develop an individualised plan of care that meets the goals of the individual and family. Prevention of a pressure ulcer may or may not be successful. Should a pressure ulcer develop, symptom management is the goal. Pressure redistribution is a primary focus as the individual in palliative care becomes less mobile as the end of life approaches. Repositioning the individual at regular intervals (unless actively dying) using a flexible, individualised repositioning schedule is important. While it is import to maintain nutrition and hydration to the extent possible, liberalising the diet to the individual's desires is in order. Care of the pressure ulcer includes wound bed preparation/cleansing, odour and exudate control, and use of appropriate dressings. Pain management is of the highest importance. The recommendations in this article are congruent with the International Pressure Ulcer Prevention and Treatment Guidelines (NPUAP et al, 2014). IJPN

'Treating generalised as well as wound pain is essential in providing good wound care.'

Declaration of interests
The authors have no conflicts of interest to declare. The authors of this article comprised the small working group for this guideline section.

Alvarez O, Meehan M, Ennis W et al (2002) Chronic wounds: palliative management for the frail population. *Wounds* **14**(8 Suppl): 1–27

American Geriatrics Society Panel on Pharmacological Management of Persistent Pain in Older Adults (2009) Pharmacological management of persistent pain in older adults. *J Am Geriatr Soc* **57**(8): 1331–46

Anathapadmanabhan K, Moore D, Subramanyan M, Meyer F (2004) Cleansing without compromise: the impact of cleansers on the skin barrier and the technology of mild cleansing. *Dermatol Ther* **17**(Suppl 1): 16–25

Bates-Jensen BM, MacLean CH (2007) Quality indicators for the care of pressure ulcers in vulnerable elders. *J Am Geriatr Soc* **55**(Suppl 2): S409–16

Bergquist-Beringer S, Gajewski BJ (2011) Outcome and assessment information set data that predict pressure ulcer development in older adult home health patients. *Adv Skin Wound Care* **24**(9): 404–14

Black J, Alves P, Brindle CT et al (2013) Use of wound dressings to enhance prevention of pressur ulcers caused by medical devices. *Int Wound J*. doi: 10.1111/iwj.12111

Chaplin J (2000) Pressure sore risk assessment in palliative care. *J Tissue Viability* **10**(1): 27–31

Chaplin J, McGill M (1999) Pressure sore prevention. *Palliative Care Today* 8(3): 38–39

Coleman S, Gorecki C, Nelson EA et al (2013) Patient risk factors for pressure ulcer development: systematic review. *Int J Nurs Studies* **50**(7): 974–1003

Connor SR, Sepulveda Bermedo MC (2014) *Global Atlas Of Palliative Care At End Of Life*. World Health Organization and Worldwide Palliative Care Alliance. http://tinyurl.com/mptunbw (accessed 30 March 2015)

Cremasco MF, Wenzel F, Zanei SS, Whitaker IY (2013) Pressure ulcers in the intensive care unit: the relationship between nursing workload, illness severity and pressure ulcer risk. *J Clin Nurs* **22**(15–16): 2183–91

De Conno F, Ventafridda V, Saita L (1991) Skin problems in advanced and terminal cancer patients. *J Pain Symptom Manage* **6**(4): 247–56

Defloor T, Grypdonck M (2005) Pressure ulcers: validation of two risk assessment scales. *J Clin Nurs* **14**(3): 373–82

Doughty D, Junkin J, Jurz P et al (2012) Incontinence-associated dermatitis: consensus statements, evidence-based guidelines for prevention and treatment, and current challenges. *J Wound Ostomy Continence Nurs* **39**(3): 303–15

Evans E, Gray M (2005) Do topical analgesics reduce pain associated with wound dressing changes or debridement of chronic wounds? *J Wound Ostomy Continence Nurs* **32**(5): 287–90

Hanson D, Langemo D, Olson B et al (1994) Evaluation of pressure ulcer prevalence rates for hospice patients post-implementation of pressure ulcer protocols. *Am J Hosp Palliat Care* **11**(6): 14–19

Kayser-Jones J, Kris AE, Lim K, et al (2008) Pressure ulcers among terminally ill nursing home residents. *Res Gerontol Nurs* **1**(1): 14–24

Langemo DK (2006) When the goal is palliative care. *Adv Skin Wound Care* **19**(3): 148–54

Langemo DK, Brown G (2006) Skin fails too: acute, chronic, and end-stage skin failure. *Adv Skin Wound Care* **19**(4): 206–11

Langemo DK, Black J (2010) Pressure ulcers in individuals receiving palliative care: a national pressure ulcer advisory panel white paper. *J Wound Ostomy Continence Nurs* **23**(2): 59–72

Lindgren M, Unosson M, Fredrikson M et al (2004) Immobility–a major risk factor for development of pressure ulcers among adult hospitalized patients: a prospective study. *Scand J Caring Sci* **18**(1): 57–64

Moore ZE, Cowman S (2015) Repositioning for treating pressure ulcers. *Cochrane Databas Syst Rev* **1**: CD006898

National Consensus Project for Quality Palliative Care (2009) *Clinical Practice Guidelines for Quality Palliative Care*. 2nd ed. Pittsburgh, PA. http://tinyurl.com/nuv9e92 (accessed 2 April 2015)

National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory panel (2009) *Prevention and treatment of Pressure Ulcers: Clinical Practice Guideline*. NPUAP, Washington DC

National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance (2014) *Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline*. Haesler E, ed. Cambridge Media, Osborne Park, Western Australia

Nenna M (2011) Pressure ulcers at end of life: an overview for home care and hospice clinicians. *Home Healthc Nurse* **29**(6): 350–65

Okuwa M, Sanada H, Sugama J et al (2006) A prospective cohort study of lower-extremity pressure ulcer risk among Bedfast older adults. *Adv Wound Care* **19**(7): 391–7

Sayar S, Turgut S, Dogan H et al (2009) Incidence of pressure ulcers in intensive care unit patients at risk according to the Waterlow scale and factors influencing the development of pressure ulcers. *J Clin Nurs* **18**(5): 765–74

Sibbald RG, Krasner DL, Lutz J et al (2009) SCALE Final Consensus Statement. http://tinyurl.com/o2ebztk (accessed 30 Mach 2015)

Sussman C, Bates-Jensen B (2012) *Wound Care: A Collaborative Practice Manual for Health Care Professionals*. 4th edn. Lippincott, Williams and Wilkins, Baltimore MA

Tescher AN, ME Branda TJ Byrne et al (2012) All at-risk patients are not created equal: analysis of braden pressure ulcer risk scores to identify specific risks. *J Wound Ostomy Continence Nurs* **39**(3): 282–91

Thein HH, Gomes T, Krahn MD, Wodchis WP (2010) Health status utilities and the impact of pressure ulcers in long-term care residents in Ontario. *Qual Life Res* **19**(1): 81–9

Tippett AW (2005) Wound at the end of life. *Wounds* **17**(4): 91–8

Vanderwee K, Grypdonck M, Bacquer D et al (2009) The identification of older nursing home residents vulnerable for deterioration of grade 1 pressure ulcers. *J Clin Nurs* **18**(21): 3050–58