

Best Practice Statement

Care of the Older Person's Skin

2012



SECOND EDITION

Dry, vulnerable skin

Pressure ulcers

Moisture-related
skin damage

Skin tears

Skin changes at life's
end

**BEST PRACTICE STATEMENT:
CARE OF THE OLDER
PERSON'S SKIN
(2ND EDITION) 2012**

PUBLISHED BY:

Wounds UK

A division of Schofield Healthcare
Media Limited Enterprise House
1-2 Hatfields London SE1 9PG, UK
Tel: +44 (0)20 7627 1510
Web: www.wounds-uk.com

Wounds UK

© Wounds UK, November 2012

This document has been developed
by Wounds UK and is supported
by an educational grant from 3M
Health Care Ltd.

3M™ Cavilon™ Range

For the treatment and protection
of damaged or at-risk skin

3M is a trademark of the 3M
Company.

The views expressed are those
of the expert working group
and review panel and do not
necessarily reflect those of 3M
Healthcare Ltd.

How to cite this document:

Best Practice Statement. *Care of
the Older Person's Skin*. London:
Wounds UK, 2012 (Second edition).
Available to download from:
www.wounds-uk.com

Developing Best Practice

The Office of National Statistics (ONS) has stated that the age structure of the population is projected to change in future years with increases in the median age of the population from 39.7 years in 2010 to 42.2 years by 2035. The population aged 80 years and over is projected to double in the next 25 years, growing from 2.9 million in 2010 to 5.9 million by 2035. By 2085 it is predicted that there will be 11.5 million people aged 80 or over (ONS, 2012).

With the elderly population growing and life expectancy increasing, many individuals now face the challenge of caring for a growing number of elderly patients who are sick and vulnerable. This places demands on their practice to ensure it is of the highest standard, often while dealing with heavy workloads that can be a barrier to reviewing literature on a regular basis. Where practitioners can access the latest published research, it can often be difficult to establish what changes, if any, a practitioner should make to his or her practice to ensure that it is optimal. Frequently, research papers call for further research to be conducted, or arrive at conclusions that can leave practitioners unclear as to how their practice should be developed.

In view of these challenges, there is a need for clear and concise guidance as to how to deliver optimal care. One method of supporting clinicians is the provision of best practice statements. These types of statements were pioneered in the area of pressure ulcers by NHS Quality Improvement Scotland (NHS QIS, 2009). In developing the Wounds UK Best Practice Statements, the relevant research has been reviewed, and expert opinion and clinical guidance is provided in a clear, accessible format.

The key principles of best practice (listed below) ensure that clinicians have an increase awareness, allowing them to exercise due care and process to promote the delivery of the highest standards of care across all care settings, and by all healthcare professionals.

- Best Practice Statements (BPS) are intended to guide practice and promote a consistent and cohesive approach to care.

- BPS are primarily intended for use by registered nurses, midwives and the staff who support them, but they may also contribute to multidisciplinary working and be of guidance to other members of the healthcare team.
- Statements are derived from the best available evidence, including expert opinion at the time they are produced, recognising that levels and types of evidence vary.
- Information is gathered from a broad range of sources to identify existing or previous initiatives at local and national level, incorporate work of a qualitative and quantitative nature, and establish consensus.
- Statements are targeted at practitioners, using language that is both accessible and meaningful.

The aim of this best practice statement is to provide relevant and useful information to guide those active in the clinical area, who are responsible for the management of skin care in an ageing patient population.

The Best Practice Statement: *Care of the Older Person's Skin* was first published in 2008. This has now been updated using the latest literature, including international, national and regional guidelines to provide information that reflects current best practice. This document, as with the original publication, has been developed by a team of specialists, chaired by Professor Richard White (see page 2). During the peer review process, practitioners from across the UK have been invited to comment on the various drafts including tissue viability nurses, dermatologists and incontinence advisors. Their expertise has been sought to cover best practice across the range of skin issues found in the ageing population.

The need to protect vulnerable areas of the skin and prevent skin breakdown form one of the cornerstones of professional care across all spheres of practice (Voegeli, 2008). This has led to the development of an updated guideline to support decision making by clinicians caring for the older person.

Professor Richard White, Professor in Tissue Viability, Institute of Health and Society, University of Worcester

Expert working group:

Richard White, Professor in Tissue Viability, Institute of Health, University of Worcester

Karen Ousey, Reader Advancing Clinical Practice, University of Huddersfield

Janice Bianchi, Medical Education Specialist, Glasgow, Scotland

Menna Lloyd-Jones, Independent Tissue Viability Nurse, North Wales

Lorraine Oxborough, Tissue Viability & Vulnerable Adults Manager, Bradford and Airedale Community Health Services

Lyndsey Allen, Clinical Nurse Specialist, Continence, Walsall Healthcare NHS Trust

Review panel:

Rosie Callaghan, Tissue Viability Nurse, Worcestershire Health and Care NHS Trust

Pauline Beldon, Tissue Viability Nurse Consultant, Epsom and St Helier University Hospitals NHS Trust, Surrey

Ann Topping, Director of the Centre for Health & Social Care Research, Huddersfield University

Care of the Older Person's Skin

The skin

As the largest organ of the body, comprising 15% of the body's weight, the skin reflects the individual's emotional and physical wellbeing. It consists of three main layers: the outer epidermis, the middle dermis and the subcutaneous tissue. Combined, these three layers of tissue provide the following functions:

- **Protection:** the skin acts as a protective barrier, preventing damage to internal tissues from trauma, ultraviolet (UV) light, temperature, toxins and bacteria (Butcher and White, 2005).
- **Barrier to infection:** part of this barrier function is the physical barrier of intact skin; the other is the presence of sebum, an antibacterial substance with an acidic pH, which is produced by the skin (Günnewicht and Dunford, 2004).
- **Pain receptor:** nerve endings within the skin respond to painful stimuli. They also act as a protective mechanism by prompting the individual to move when they feel pain or discomfort, helping to prevent pressure damage.
- **Maintenance of body temperature:** to warm the body, the vessels vasoconstrict (become smaller), thus retaining heat. If the vessels vasodilate, this leads to cooling (Timmons, 2006).
- **Production of vitamin D in response to sunlight:** this is important in bone development (Butcher and White, 2005).
- **Production of melanin:** this is responsible for skin colouring and protection from sunlight radiation damage.
- **Communication, through touch and physical appearance:** this gives clues to the individual's state of physical wellbeing (Flanagan and Fletcher, 2003).

The effects of ageing on skin

The changes in the skin that occur as an individual ages affect the integrity of the skin, making it more vulnerable to damage. The epidermis gradually becomes thinner (Baranoski and Ayello, 2004; Voegeli 2007), making the skin more susceptible to damage from the mild mechanical injury forces such as moisture, friction and trauma (International Review, 2010).

With ageing there is also a flattening out of the dermo-epidermal junction, which makes it more fragile and more susceptible to shearing forces. This can cause stretching of the skin and damage to blood vessels (Voegeli, 2007).

There is also an estimated 20% reduction in the thickness of the dermis, which results in the paper-thin appearance, commonly associated with the elderly (Haroun, 2003). This thinning of the dermis sees a reduction in the blood vessels, nerve endings and collagen, leading to a decrease in sensation, temperature control, rigidity and moisture retention (Baranoski and Ayello, 2004). The reduction in the number of sweat glands and in the production of sebum can make it difficult to keep the skin well hydrated and can lead to dryness and itching (Watkins, 2011). In addition, elderly people may not be able to detect temperature changes readily, making them more susceptible to the cold and hypothermia.

Incontinence can be a problem associated with old age; not only will urine and faeces change the pH of the skin from acid to alkaline, it will also increase the need to cleanse the skin. Cleansing the skin can cause further skin damage as traditional soaps can change the skin's pH to alkaline. This may increase the risk of the effects of dehydration and alter the normal bacterial flora of the skin, allowing colonisation with more pathogenic species (Cooper and Gray, 2001).

With a reduced ability of the skin to regenerate and a less efficient protective immune system, the elderly are at an increased risk of skin breakdown from even the simplest insult (Voegeli, 2007). It is therefore vital that care of the older person's skin is seen as a priority.

This document aims to provide clinicians with best practice guidance in five key areas of skin care for older people, namely:

- dry, vulnerable skin
- pressure ulcers
- moisture-related skin damage, including maceration and incontinence
- skin tears
- end of life.

GUIDE TO USING THIS DOCUMENT

Each of the sections that follow offer advice about caring for the older person's skin and includes a table with tips for application of best practice, namely:

- the optimum outcome
- the reason for, and how best to succeed in reaching this outcome
- how to demonstrate that best practice is being achieved.

In addition, each section identifies key points/challenges, and is supported by key references, where available.

SECTION 1: MANAGEMENT OF DRY, VULNERABLE SKIN

As the skin ages it undergoes a number of changes. It becomes thinner, losing dermal collagen and elastin, and there is a reduced blood supply. This results in the skin becoming more fragile and easily damaged, with injuries (eg skin tears) being slow to heal.

One of the major functions of healthy skin is to act as a physical barrier with the external environment. In healthy skin, the outermost layer of the epidermis (stratum corneum) serves to 'regulate' water loss through the skin. It has a relatively high water content, which helps keep it soft and flexible. As the skin ages there is a reduction in sebum production and in the natural moisturising factors that contribute to its hydration and conformability; thus the aging skin becomes dry and flaky (Voegili, 2007) (Figure 1).

Dry skin conditions typically reflect the disruption of the normal functioning of the skin barrier. Once the skin becomes dry, it is more vulnerable to splitting and cracking, exposing it to increased water loss through trans-epidermal evaporation and to bacterial invasion, further adding to the likelihood of breakdown from infection (All Wales Tissue Viability Nurses Forum, 2011).

Dry skin (also known as xerosis) is often associated with other skin diseases, environmental factors and systemic illness, as well as the underlying ageing process (Wingfield, 2011). Table 1 lists some possible causes of dry skin.

Pruritus or 'itch' is a very common dermatological problem associated with dry skin. It increases in incidence with age, with an overall prevalence in primary care of 55%; nursing home prevalence reports are between 30-75% (Paul et al, 2011). The prevalence of chronic pruritus (duration >6 weeks) in people over 60 years is over 20% (Sander et al, 2010).

Pruritus can cause discomfort and in severe cases it can lead to disturbed sleep, anxiety and depression. Anxiety and stress can make itching worse and often there is a psychological element to pruritus. Constant scratching can damage the skin, reducing its effectiveness as a



Figure 1: Dry skin

protective barrier (DermNetNZ: <http://www.dermnetnz.org/systemic/itch>).

The causes of pruritus are multifactorial. It is often a symptom of many skin diseases, such as allergic contact dermatitis and is also associated with some medications (both topical and systemic, eg opioids, aspirin) as well as other exogenous causes, such as scabies and exposure to environmental agents (eg irritants such as soaps).

A number of common systemic disease states frequently encountered in the older person may predispose to the development of pruritus, the more common of which include diabetes, chronic kidney disease, cholestasis, thyroid dysfunction and iron deficiency anaemia.

Investigations are often necessary to establish the cause of pruritus. When no systemic cause for pruritus is found, people often respond well to treatment for dry skin (Cowdell, 2009).

Key points:

1. Skin health is essential to the wellbeing of the older person.
2. Skin problems are common in older people (Cowdell, 2011).
3. Dry skin is itchy skin. Once identified, individuals should have a frequent skin assessment to prevent breakdown.
4. Pruritus is common in the older person. Once the cause(s) are established, treatment is usually straightforward and effective. However, because it is often associated with systemic disease, investigations are often necessary.
5. Emollients, applied at least twice daily, are seen as the first line of treatment and will help to rehydrate and maintain skin integrity.
6. Ensure that nails are suitably trimmed to minimise/avoid skin trauma during scratching.

Table 1: Causes of dry skin (Adapted from Ayer, 2010; Bianchi et al, 2011)

| |
|--|
| Reduction in the production of sebum/loss of natural moisturising factors (eg due to increasing age) |
| Environmental factors (eg dry air from central heating) |
| Frequent bathing/use of harsh soaps |
| Inherited factors/skin conditions (eg eczema, psoriasis, ichthyosis) |
| Systemic illness (eg hypothyroidism, liver/kidney disease, malnutrition, HIV/Aids, Vitamin A deficiency) |

Table 2: Total emollient therapy (Lawton, 2009)

| | |
|------------------|--|
| Soap substitutes | Soap is an irritant and can make the skin itchy. Soap substitutes cleanse effectively but do not leave the skin feeling dry |
| Bath oils* | Add to bath water to help moisturise the skin. Bath additives leave a layer of oil after bathing *Warning: bath oils can make the bath slippery. Risk assess patient and environment for suitability |
| Moisturisers | Moisturisers are 'leave on' emollients. They are available as: Ointments: they have the highest oil content and are greasy. They can be messy to apply, leave the skin looking shiny and stain clothes. They are suitable for very dry skin and may be best applied at night. Ointments usually work by occlusion Creams: they are quickly absorbed and more cosmetically acceptable. Creams are good for daytime use and work by occlusion or 'active' humectant effect, but are much less effective than ointments Lotions: the lightest and least greasy emollients (contain less oil). They are not suitable for dry skin conditions |

Table 3: Quantities of dermatological preparations (creams and ointments) for specific areas of the body (Source: BNF)

| | Amount suitable for an adult for twice daily application for one week |
|---------------------|---|
| Face | 15–30g |
| Both hands | 25–50g |
| Scalp | 50–100g |
| Both arms or leg | 100–200g |
| Trunk | 400g |
| Groin and genitalia | 15–25g |

Pruritus may be generalised, or occur in specific areas of the body, eg the anus (pruritus ani) and vulva (pruritus vulvae), which is often linked to incontinence and other treatable infections such as thrush and vaginitis.

Role of emollient therapy

Emollients are important in promoting skin health in the elderly and are seen as the first-line treatment for all dry scaling disorders, regardless of age group. They are available as moisturisers (creams, ointments and lotions), bath oils, gels and soap substitutes (NICE, 2004). It is important to distinguish therapeutic preparations from cosmetics; the latter will have additives such as fragrances and colours, which are of no therapeutic value (Bikowski 2001).

Emollients can be used directly on the skin or as an alternative soap substitute in place of

detergent products (such as soaps and shower gels), which can further dry the skin (Cork and Danby 2009; Wingfield, 2011). Regular use of emollients can help to increase the amount of water held in the stratum corneum (Ersser et al, 2009).

Moisturisers are 'leave on' emollients. They work in two different ways: by either blocking the escape of water from the skin (occlusion) or in an 'active' way by drawing water to the epidermis from the dermis (humectants) (Ersser et al, 2009; Rawlings and Harding, 2004). In dry skin conditions in the elderly, these products are a key element of treatment and may be prescribed alone or to be used as an adjuvant to other topical treatments, eg topical steroids.

Application

Patients with dry skin and their carers should be advised to apply a moisturiser (cream or ointment) regularly, directly to the skin in a downward motion in the direction of hair growth. This will reduce the risk of blocking the hair follicles (folliculitis) (Figure 2). This should be applied at least twice daily, preferably after bathing (Ersser et al, 2009).

Patient preference is one of the most important factors to consider when selecting and prescribing emollient therapy (Lawton, 2007; 2009). It is also essential to prescribe adequate quantities (Table 3). The joint British Association of Dermatology (BAD) and Primary Care Dermatology Society (PCDS) guidelines recommend 600g of moisturiser per week for adults (British Association of Dermatologists/Primary Care Dermatology Society Guidelines, 2006).

'Total (or complete) emollient therapy' is the term given to a regimen that includes soap substitutes, bath oils and a moisturiser (Cork and Danby 2009; Table 2).

It is important to advise the patient/ carer not to stop treatment once the condition is controlled as emollient therapy will help to prevent future exacerbations (Patel and Yosipovitch, 2010).



Figure 2: Application of a moisturiser using a downward movement (courtesy of Wingfield, 2011).

DBPS APPLICATION TO PRACTICE: MANAGEMENT OF DRY, VULNERABLE SKIN

| Best practice statement | Reason for best practice statement | How to demonstrate best practice |
|---|--|---|
| All individuals should be assessed to determine the condition of the skin (eg dry*, flaky, excoriated, discoloured, etc) | Assessment enables the correct and suitable preventative measures to be initiated and maintained | Document skin assessment findings in the health records |
| All individuals with dry, vulnerable skin should avoid skin irritants (eg soaps). Dry skin conditions require the application of a moisturiser at least twice daily as part of a therapeutic treatment regimen | Application of a moisturiser rehydrates the skin and reduces the irritant effects from perfumes and additives (Bale, 2004). Dry skin is best treated with an ointment, moderately dry with a cream or gel, and slightly dry with a lotion (Ersser et al, 2009). Patient preferences and lifestyle should be taken into consideration | Document in the health records which moisturiser was prescribed and how often it should be applied |
| Soap substitutes (or skin cleansers) should be used to wash the skin of individuals with dry, vulnerable skin, or skin determined to be vulnerable when washing/cleansing during routine personal hygiene | Washing skin with a soap substitute reduces the drying effects associated with soap and water (Calianno, 2002; Cooper and Gray, 2008). Bath additives leave a layer of oil over the skin after bathing and prevent excessive moisture loss during washing | Document in the health records the skin cleansing regimen used |
| Skin should be dried gently to prevent further dehydration, before applying a topical 'leave on' moisturiser. Drying should involve light patting and not rubbing, as rubbing may lead to abrasion and/or weakening of the skin (Britton, 2003) | If the skin is left damp it is at risk from bacterial and fungal contamination. Application of a topical 'leave on' moisturiser after washing will help to maximise its hydrating effect (Ersser et al, 2009) | Document in the health records that the individual's skin was dried in an appropriate manner |
| Application of the moisturiser should follow the direction of the body hair, and be gently smoothed into the skin (amounts recommended by the <i>British National Formulary [BNF]</i> are outlined in <i>Table 3</i> , page 5) | Continuously rubbing the moisturiser into the skin can lead to irritation. Rubbing against the lie of the hair can aggravate the hair follicle causing folliculitis, particularly if greasy emollients are used (Ersser et al, 2009) | Ensure staff are trained in the application of moisturisers and show individuals how to do this properly as part of a self-management education programme |

*Dry skin in the elderly is different to dermatological conditions such as eczema, psoriasis and underlying skin sensitivities. Individuals with eczema, psoriasis and underlying skin sensitivities are likely to benefit from the above guidance but should be referred for specific, appropriate treatments

SECTION 2: PRESSURE ULCERS

'A pressure ulcer is localised injury to the skin and/or underlying tissue, usually over a bony prominence, as a result of pressure, or pressure in combination with shear. A number of contributing or confounding factors are also associated with pressure ulcers, the significance of these factors has yet to be elucidated' (European Pressure Ulcer Advisory Panel [EPUAP]/National Pressure Ulcer Advisory Panel [NPUAP], 2009).

The forces of pressure are further exacerbated by moisture, and factors relating to the individual's physical condition, such as altered mobility, poor nutritional status, medication, and underlying medical conditions. Pressure ulcers are also referred to as pressure sores, decubitus ulcers and bedsores (Beldon, 2006).

Pressure ulcers usually occur over a bony prominence, such as the sacrum, ischial tuberosity and heels. However, they can appear anywhere that tissue becomes compressed, such as under a plaster cast or splint.

Direct pressure is the major causative factor in the development of pressure ulcers. This occurs when the soft tissue of the body is compressed between a bony prominence and a hard surface. This occludes the blood supply, leading to ischaemia and tissue death (Figure 3).

Patients should be encouraged to move themselves, where possible, but others may require assistance. Repositioning should be considered for all those deemed to be at risk of pressure ulceration and patients should be offered an appropriate support surface to help prevent pressure damage.

If the pressure is unrelieved for a long period of time, the damage will extend to the bone. A cone-shaped ulcer is created, with the widest part of the cone close to the bone, and the narrowest on the body surface. This may be seen as a non-blanching erythema, or an area of superficial skin loss on examination suggesting minimal involvement at the surface, but providing no indication of how extensive the tissue damage may be (Dealey, 1994; Nixon et al, 2007). The ulcer may deteriorate rapidly, often causing alarm to both patients and their families.

In some situations, this deep tissue damage may have occurred in the days prior to admission to health or social care, which is a good reason for inspection within the first six hours following admission (National Institute for Health and Clinical Excellence [NICE], 2005). Inspection is necessary to check for skin blemishes and to initiate a risk assessment in order to start a pressure prevention care plan, avoiding further damage. Deep tissue injury may be difficult to detect in individuals with dark skin tones (see page 10).

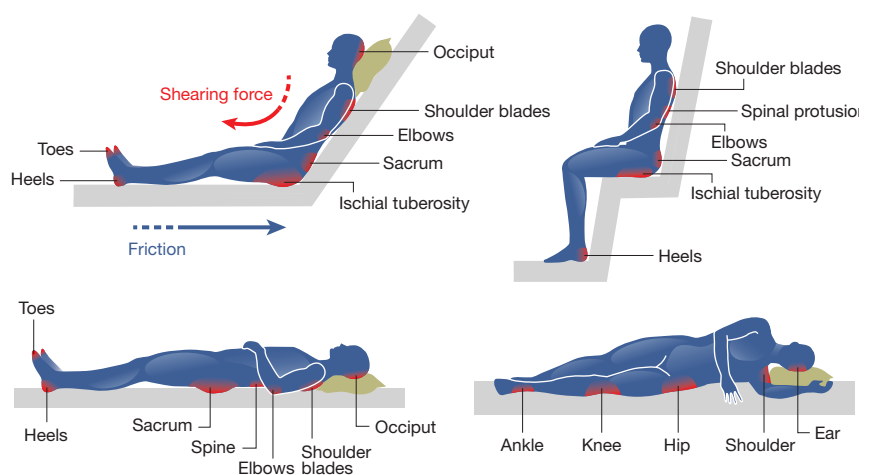


Figure 3: Pressure ulcer points on the body

Shear in combination with pressure can also contribute to pressure ulcer development (EPUAP/NPUAB, 2009). This usually occurs when the skeleton and underlying tissue move down the bed under gravity, but the skin on the buttocks and back remain stuck to the same point on the mattress. This twisting and dragging effect occludes blood vessels, which causes ischaemia and usually leads to the development of more extensive tissue damage (International Review, 2010).

The mechanical properties of the stratum corneum are changed by the presence of moisture and as a function of temperature (EPUAP/NPUAB, 2009). This can increase the risk of friction and shear forces on the skin (Clark and Black, 2011). Shear forces can be exacerbated by the presence of surface moisture through incontinence or sweating (Collier, 1996), and by friction when the skin slides over the surface with which it is in contact.

Friction occurs when two surfaces move or rub across one another, leading to superficial tissue loss. Prior to the use of moving and handling equipment, patients were manually lifted up onto the bed and, if the sacrum and heels were not clear of the surface, they would be dragged up causing friction to these areas. The majority of pressure ulcers to the heel are caused by a combination of both pressure and friction. Initially, they present as a blister (friction), with purple discoloration to the underlying tissue (pressure).

The effects of pressure, shear and friction can be further exacerbated by the individual's physical condition. These factors should be considered when carrying out a full assessment, including:

- general health
- age
- reduced mobility
- nutritional status
- incontinence
- certain medications.

Recording pressure ulcers

In the UK, all pressure ulcers should be documented and pressure ulcers graded as 2 or above reported following local reporting procedures (NICE, 2005). It is important not to reverse grade a pressure ulcer, while any skin damage identified as a result of incontinence and/or moisture alone, should not be recorded as a pressure ulcer. There is often confusion on the difference between a lesion caused by pressure and one resulting from moisture. The EPUAP (Defloor et al, 2005a) has produced clear guidance on how to distinguish superficial pressure ulcers from moisture lesions, which once diagnosed, must be followed by the implementation of appropriate treatment measures. If due to incontinence, containment of urine and/or faeces is important. Langøen (2010) states that if the cause is pressure, then offloading and a review of support surfaces should be the priority.

Avoidable and unavoidable pressure ulcers

Pressure ulcers are high on the political agenda in the UK (DH, 2011) and were recently identified as one of eight High Impact Actions for Nursing and Midwifery. The chapter 'Your Skin Matters' within this NHS document suggests that pressure ulcers should be seen as 'avoidable adverse events, not an inevitable

fact of life' (NHS Institute for Innovation and Improvement, 2010). In addition, the Department of Health/National Patient Safety Agency (2010) have produced definitions of avoidable and unavoidable pressure ulcers for all health-care practitioners to use when recording pressure ulcer development.

'Avoidable: This means that the person receiving care developed a pressure ulcer and the provider of care did not do one of the following: evaluate the person's clinical condition and pressure ulcer risk factors; plan and implement interventions that are consistent with the person's needs and goals, and recognised standards of practice; monitor and evaluate the impact of interventions; or revise the interventions as appropriate.'

'Unavoidable: This means that the person receiving care developed a pressure ulcer even though the provider of the care evaluated the person's clinical condition and pressure ulcer risk factors; planned and implemented interventions that were consistent with the person's needs and goals and recognised standards of practice; monitored and evaluated the impact of the interventions; and revised the approaches as appropriate; or the individual person refused to adhere to prevention strategies in spite of education of the consequences of non-adherence.'

The aim to eliminate Category 2, 3 and 4 pressure ulcers by December 2012 is an ambitious programme that has been planned and implemented through a careful process of consultation, communication and engagement.

Staff and carers involved in looking after individuals at risk, or with existing pressure ulcers should use national guidelines on the prevention and treatment/management of pressure ulcers to ensure that best practice is provided. In addition, they should follow local protocols. This includes protection of vulnerable adults — that is, anyone aged 18 or over who is in need of community care services and is unable to look after themselves (DH, 2000).



Figure 4: Pressure ulcer located on the sacrum, presenting with exposed bone, slough and granulation tissue



Figure 5: Pressure ulcer to the sacrum, caused by the combined effects of pressure and shear



Figure 6: Pressure ulcer located on the sacrum, caused by pressure and friction. The effects of friction cause epidermal cell stripping

SECTION 2A: RISK ASSESSMENT

Key points:

1. Early recognition of people who are at risk of developing pressure ulcers is an essential part of prevention.
2. All individuals 'at risk', or with existing pressure ulcers should be assessed within six hours of start of admission to the episode of care and reviewed on a regular basis throughout their stay (NICE, 2005).
3. Those individuals considered 'at risk', or those with pressure ulcers, should receive appropriate interventions.
4. An avoidable pressure ulcer is one that occurs when risk assessments, preventive actions and continued re-evaluations have not been implemented.

DBPS APPLICATION TO PRACTICE: MANAGEMENT OF PRESSURE ULCER RISK ASSESSMENT (ADAPTED FROM NHS QIS, 2009)

| Best practice statement | Reason for best practice statement | How to demonstrate best practice |
|--|---|---|
| All individuals should be assessed using both formal* and informal** assessment tools to determine their level of risk of pressure ulcer development | Risk assessment enables the correct and suitable preventative measures to be initiated and maintained. Combining both formal and informal risk assessment allows an evaluation and early identification of the patient's clinical condition and pressure ulcer risk factors | Document evidence of pressure ulcer risk assessment in health records of all individuals admitted to, or resident in a facility Document choice of assessment tool used, as this reflects the care setting Document in the individual's health record that staff act on individual components of the risk assessment process, eg poor dietary intake, incontinence, etc |
| Individuals are reassessed at regular intervals and/or if their condition or treatment alters | Changes within the individual's physical or mental condition can lead to an increased risk of pressure ulcer development | Show evidence that individuals are reassessed in response to changes in their physical and/or mental condition and that suitable measures are taken |

*Formal risk assessment is the use of a recognised risk assessment tool (refer to *Table 4, below*)

** Informal risk assessment, or clinical judgement, is the clinician's or carer's own clinical experience, their understanding of the client group, as well as the individual's environment and physical condition

Table 4: Formal risk assessment scales

| | |
|--|--|
| Braden Scale | Bergstrom N, Braden BJ, Laguzza A, Holman V (1987) The Braden scale for predicting pressure sore risk. <i>Nurs Res</i> 36(4): 205–10 |
| Knoll Scale | Towey AP, Erland SM (1988) Validity and reliability of an assessment tool for pressure ulcer risk. <i>Decubitus</i> 1(2): 40–8 |
| Norton Scale | Norton D, McLaren R, Exton-Smith AN (1962) An investigation of geriatric nursing problems in hospital. The National Corporation for the Care of Old People, London |
| Pressure Sore Prediction Score | Lowthian P (1989) Identifying and protecting patients who may get pressure sores. <i>Nurs Standard</i> 4(4): 26–9 |
| Waterlow Risk Assessment Score | Waterlow J (1988) The Waterlow card for the prevention and management of pressure sores: towards a pocket policy. <i>Care Science and Practice</i> 6(1): 8–12 |
| Pressure Ulcer Risk Assessment Tool (PURAT) | Wicks G (2006) PURAT: is clinical judgement an effective alternative? <i>Wounds UK</i> 2(2): 14–24 |
| Pressure ulcer risk assessment scales for children: Bedi, Cockett, Garvin, Braden Q, Pickersgill, the Pattoid pressure scoring system, the paediatric pressure sore/skin damage risk assessment (Waterlow) | Wilcock J (2006) Pressure ulcer risk assessment in children. In: White R, Denyer J (Eds). <i>Paediatric Skin and Wound Care</i> . Wounds UK, Aberdeen: 79–86 |

2B: SKIN INSPECTION

Further examination of erythema or skin discoloration should include the following steps:

- Apply light finger pressure to the area of erythema or discoloration for 10 seconds.
- Release the pressure. If the area is white and then returns to its original colour, the area probably has an adequate blood supply. Observation should continue and preventative strategies should be employed.
- If, on release of pressure, the area remains the same colour as before pressure was applied, it is an indication of the beginning of pressure ulcer development and preventative strategies should be employed immediately.

- If there is an alteration in the skin colour (redness, purple or black), increased heat or swelling, it may imply underlying tissue breakdown. Frequency of assessment should be increased and preventative strategies should be employed.
- With dark skin pigmentation, pressure ulcer development will be indicated by areas where there is localised heat, or where there is damage, coolness, purple/black discoloration, localised oedema and induration.

Key points:

1. All individuals ‘at risk’, or with existing pressure ulcers should be assessed.
2. Inspection of identified individuals should be carried out regularly, and between assessments, if health status changes for better or worse.
3. Those individuals identified at risk or with an existing pressure ulcer should receive appropriate interventions.

DBPS APPLICATION TO PRACTICE: SKIN INSPECTION IN PATIENTS AT RISK OF PRESSURE ULCERATION (ADAPTED FROM NHS QIS, 2009)

| Best practice statement | Reason for best practice statement | How to demonstrate best practice |
|--|---|--|
| All individuals should have their skin assessed as part of a holistic assessment | The majority of pressure ulcers that occur are superficial in nature. Early identification of skin changes may prevent further deterioration | Following assessment of risk, document visual inspection of the skin within the individual’s health records Educate professionals on differentiating pressure ulcers from other types of wounds (eg incontinence-associated dermatitis/moisture lesions) |
| General visual inspection of all areas of the skin should form part of the assessment process, with special attention being paid to bony prominences. Also pay attention to the skin where it comes into contact with devices and regularly check these areas for signs of pressure damage | The majority of pressure ulcers that occur are located on the sacrum and heels (Wilson, 2011). A significant proportion of pressure ulcers in critically ill or immobile patients are related to the use of medical devices. These are not always avoidable and require new techniques to help reduce or prevent skin damage beneath medical devices (Fletcher, 2012) | If findings from skin inspection indicate that further intervention is required, document this, along with the subsequent action taken, in the health records Record any interventions undertaken, eg pressure relieving mattress, cushion, heel protectors/dermal pads. Refer to specialist as appropriate |
| Where an area of redness or skin discoloration (erythema/hyperaemia) is noted, further examination is required. Care is needed in patients with dark skin pigmentation | Further examination will indicate if the skin changes are the early stage of pressure ulcer development | Document skin condition and subsequent examination in the individual’s health records. Educate professionals about special assessment techniques to be used in darkly pigmented individuals |

SECTION 2C: CLASSIFICATION

The International EPUAP/NPUAP Pressure Ulcer Classification System (2009) is most frequently used to categorise ulcers:

Category/Stage I: 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 be painful, firm, soft, warmer or cooler than adjacent tissue.

Category/Stage II: Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough or bruising. May also present as an intact or open/ruptured serum-filled or serosanguinous filled blister. This category should not be used to describe skin tears, tape burns, incontinence-associated dermatitis, maceration or excoriation.

Category/Stage III: Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle are not exposed. Some slough may be present and there may be undermining

and tunneling. The depth varies by anatomical location. For example, the bridge of the nose, ear, occiput and malleolus can be shallow. In contrast, areas of significant adiposity can result in extremely deep ulcers

Category/Stage IV: Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present. Often includes undermining and tunneling. The depth varies by anatomical location (see above). Deep ulcers can extend into muscle and/or supporting structures (eg fascia, tendon or joint capsule) making osteomyelitis or osteitis likely to occur.

Two further categories are described:

■ **Unstageable/Unclassified:** Full thickness skin or tissue loss in which the true depth of the ulcer is completely obscured by slough and/or eschar in the wound bed.

■ **Suspected Deep Tissue Injury — depth unknown:** Purple or maroon localised area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear.

Key points:

1. All individuals with pressure ulcers should have the ulcer assessed using a recognised classification system, such as the EPUAP/NPUAP Pressure Ulcer Classification System (2009)
2. Accurate assessment of the pressure ulcer enables appropriate treatments and interventions.
3. Category/Stage I pressure ulcers may be difficult to detect in individuals with dark skin tones. Nurses may need to observe for persistent red, blue, or purple changes in skin tone or touch the skin to assess for induration or oedema (Bennett, 1995).

DBPS APPLICATION TO PRACTICE: CLASSIFICATION OF PRESSURE ULCERATION (ADAPTED FROM NHS QIS, 2009)

| Best practice statement | Reason for best practice statement | How to demonstrate best practice |
|--|---|---|
| All individuals identified with a pressure ulcer should be assessed to determine level of tissue damage using the EPUAP/NPUAP Classification System (2009) | Pressure ulcers should be classified correctly and uniformly. This enables selection of appropriate interventions | Ensure that all practitioners use the EPUAP/NPUAP Classification System to document level of tissue loss (TVN, 2012). Report all pressure ulcers Category 2 or above following local reporting procedures |
| All practitioners should refer to the Department of Health's (2010) definitions of avoidable and unavoidable pressure ulcers | The Department of Health outlined an ambition to eliminate all avoidable pressure ulcers and significantly reduce the hospital spend on treating them | Ensure that all practitioners use the correct definitions to audit pressure ulcers as part of a pressure ulcer prevention strategy |
| When assessing pressure ulcers, the following should be considered: cause, location, classification (according to EPUAP/NPUAP, 2009), dimensions, wound bed appearance, exudate, pain, surrounding skin condition, and infection, if present. A complete history and physical examination of the individual should be undertaken | Early identification of skin changes and/or thorough assessment of the pressure ulcer(s) should lead to appropriate treatments and interventions. A pressure ulcer should be assessed considering the individual's overall physical and psychosocial health | Document initial pressure ulcer assessment in patient's health records. This should be supported by tracings and or photography where appropriate. Local guidance must be followed and permission granted by the patient Plan and implement interventions that are consistent with patient's needs and goals, and recognised standards of practice |
| Any pressure ulcer should be reassessed regularly, at least weekly, or according to the individual's condition and/or if the individual's condition changes for better or worse | Ongoing assessment enables an accurate and individualised treatment plan to be devised | Monitor and evaluate the impact of the interventions and revise as appropriate. Document assessment of the individual and pressure and note improvement or deterioration in condition |

SECTION 2D: STABILISATION AND POSITIONING

All patients should be encouraged to reposition themselves regularly when able to do so. For those who require assistance, repositioning should be undertaken with consideration for the patient's comfort, dignity and functional ability. Any repositioning must take into account that while pressure is being relieved/redistributed, it is also important the patient is able to function, for example, take adequate nutrition and fluids in that position.

When repositioning a patient, manual handling aids must be used to avoid dragging the

individual along the mattress, which can cause tissue damage through shear and friction.

If the individual is to remain in bed, his or her position should be changed regularly and at least every two hours (although this should be adjusted to suit individual requirements as some patients may need more frequent intervention than others). Patients should be rested at a 30-degree tilt and on alternate sides to avoid prolonged pressure over bony prominences. Clinicians should always follow local protocols (Wilson, 2011).

Key points:

1. Individuals 'at risk', or with existing pressure ulcers should not be left out of bed, sitting for long periods.
2. Acutely ill patients should be returned to bed at regular intervals as determined by their mobility and risk status (Moore and van Etten, 2011).

DBPS APPLICATION TO PRACTICE: STABILISATION AND POSITIONING FOR PREVENTION/MANAGEMENT (ADAPTED FROM NHS QIS, 2009)

| Best practice statement | Reason for best practice statement | How to demonstrate best practice |
|---|--|--|
| <p>Individuals at risk of pressure ulcer development, or with existing pressure ulcers should be suitably positioned while in bed, or up sitting, to minimise pressure, friction and shear, and the potential for further tissue damage</p> <p>Individuals who can move independently should be encouraged to do so</p> <p>Individuals who require assistance with movement should, along with associated carers, be educated in the benefits and techniques of weight distribution</p> | <p>Short periods (up to two hours) of sustained pressure can be as damaging to the skin as long periods of sitting</p> <p>The time period between position changes is based on assessment of each individual and his/her condition</p> <p>Evidence suggests that individuals at risk of pressure ulcer development should not be positioned in a sitting position for more than two hours without some form of repositioning (DeFloor, 2000; DeFloor, 2005b)</p> <p>Devices to assist with the repositioning of individuals are available and of value, such as electric and non-electric profiling beds, specialist seating</p> | <p>Document in health records how frequently position changes are being carried out.</p> <p>Demonstrate that:</p> <ul style="list-style-type: none"> • individuals at risk of pressure ulcer development, or with existing pressure ulcers are not positioned in a seat for more than two hours, without being repositioned. Individuals who are acutely ill are returned to bed for no less than one hour (Gebhardt and Bliss, 1994) • when possible, the individual and/or carer are involved in the management • for individuals in bed, differing positions such as the 30-degree tilt* (Young, 2004) are used • hoist slings and sliding sheets are not left under individuals after use** • skin inspection is carried out when altering the individual's position: these inspections can help guide decisions on the length of time between position changes <p>Document the results of skin inspection and any changes made to the repositioning regimen within the individual's health records</p> |
| <p>Individuals with specific moving and handling requirements (eg spinal injuries) should have their needs assessed by the professional with the most relevant skills</p> | <p>Moving and handling aids can help reposition individuals who require assistance in moving</p> | <p>Refer to appropriate individual, eg physiotherapist, occupational therapist, specialist mobility services and document in the health records</p> |

*The 30-degree tilt is when the individual is placed in the laterally-inclined position, supported by pillows, with their back making a 30-degree angle with the support surface

**With associated manual handling issues concerning the removal of a hoist or sling, eg pain management, or comfort for terminally ill patients, a joint assessment by tissue viability and manual handling advisors may be appropriate

SECTION 2E: STABILISATION, MATTRESSES, CHAIRS AND CUSHIONS

Pressure ulcer equipment has two main functions — to redistribute pressure and to provide comfort. NICE (2005) states that no patient at risk of pressure ulceration should be nursed on anything less than a high density foam mattress. Seating must also be considered as patients are at greater risk

when seated than they are when lying in bed due to their weight resting on a smaller surface area (Moore and van Etten, 2011). It is generally considered that patients at risk of pressure damage should also have a pressure-relieving cushion on their seating (Wilson, 2011).

Key points:

1. Individuals 'at risk', or with a pressure ulcer must be cared for on an appropriate support surface.
2. Individuals identified as requiring pressure-relieving equipment should receive this as soon as possible.
3. Individual requirements for pressure-relieving equipment may change. Reassess risk status regularly and according to patient circumstances.
4. Patient transport to and from procedures can expose individuals to risk if not conducted on a suitable support surface.

DBPS APPLICATION TO PRACTICE: STABILISATION, MATTRESSES, CHAIRS AND CUSHIONS (ADAPTED FROM NHS QIS, 2009)

| Best practice statement | Reason for best practice statement | How to demonstrate best practice |
|--|--|--|
| <p>Individuals at risk of pressure ulcer development, or with a pressure ulcer, should not be cared for solely on standard NHS foam mattresses or on basic divan mattresses; at a minimum, they should be provided with a pressure-relieving foam mattress or overlay</p> <p>Factors to consider when deciding which pressure-relieving equipment to purchase or hire include:</p> <ul style="list-style-type: none"> • clinical efficacy • ease of use/maintenance • impact on care procedures • patient acceptability • cost <p>The decision to provide pressure-relieving equipment should be taken as part of a comprehensive treatment/management strategy, never as a sole intervention</p> | <p>There is clear evidence that individuals at risk, or with pressure ulcers benefit from the provision of different/additional products from the standard NHS provision (Cullum et al, 2001; McInnes, 2004). NICE recommends that all individuals assessed as being vulnerable to pressure ulcer development should be placed on a high specification foam mattress with pressure-relieving properties (NICE, 2005).</p> <p>There is no clear evidence to determine which type of products are best to use in any particular situation (Cullum et al, 2001)</p> | <p>Ensure there is a clear organisational policy concerning the provision of specialist equipment for individuals at risk, or with existing pressure ulcers. The policy should include guidance on when to seek advice from a specialist in the field of tissue viability</p> <p>Document the use of any product beyond a basic NHS mattress or divan in the individual's health record</p> <p>Document any measures being implemented in addition to the use of special mattresses and overlays</p> <p>Document the date of first use of specialist equipment</p> |
| <p>Individuals being cared for on specialist equipment should be assessed for their overall physical condition, including the condition of the skin to evaluate the suitability of the equipment, which may change over time</p> | <p>All patients have specific requirements based on their overall physical condition, including the condition of their skin</p> | <p>Ensure regular skin inspection and record any subsequent actions taken/decisions in the health record</p> |
| <p>Individuals at risk, or with a pressure ulcer, should be provided with appropriate pressure-relieving equipment when sitting in a chair or wheelchair, in addition to when they are being cared for in bed</p> <p>Long-term wheelchair or static seat users should have their needs assessed by those with relevant specialist skills</p> | <p>Further tissue damage may occur when patients are sitting in chairs (Defloor, 2000)</p> <p>Chairs and/or cushions designed to reduce the risk of pressure ulcer development must be suited to individual needs, in relation to height, weight, postural alignment and foot support</p> <p>The safety of static seats can be compromised due to changes in height, balance and lumbar support with the use of cushions (Collins, 2000)</p> | <p>Document the assessment of an individual's needs in relation to wheelchair/static seat use</p> <p>Ensure the health records of long-term wheelchair and static seat users document assessment records from a suitably trained specialist</p> |

SECTION 2F: PROMOTING HEALING

Treatment decisions should be made on the assessment of the pressure ulcer, skin inspection, level of risk, treatment objective and patient preference. However care of the local wound environment is not always the primary objective (Fletcher et al, 2011). For example, where the patient is close to end of life, removal of necrosis may also not be the best option, especially if it is dry and not causing them pain.

Wound dressings can help to create an optimum wound healing environment, pro-

tect a wound and improve patient comfort. Dressings should not be used to reduce pressure over vulnerable areas. The choice of dressing is based upon assessment of the ulcer and patient (Fletcher et al, 2011).

The use of negative pressure wound therapy (NPWT) for the treatment of Category III and IV pressure ulcers has increased significantly over recent years (WUWHS, 2008). Nutrition also plays key role in wound healing and in the prevention of pressure ulcers (Banks et al, 2012).

Key points:

1. Extensive superficial pressure ulcers, or any severe pressure ulcers, require specialist referral.
2. Pressure ulcers can be life-threatening.
3. It is important to differentiate between a pressure ulcer and a moisture lesion.
4. Assess and address nutritional needs.

DBPS APPLICATION TO PRACTICE: PROMOTING PRESSURE ULCER HEALING (ADAPTED FROM NHS QIS, 2009)

| Best practice statement | Reason for best practice statement | How to demonstrate best practice |
|--|--|--|
| Extensive superficial pressure ulcers, or any severe pressure ulcers, should be considered for referral onto specialist services, ie tissue viability specialist nurses (TVNs) or plastic surgeon Always ensure that the medical staff in charge of an individual's care are notified of the existence and extent of pressure damage | The management of individuals with large areas of superficial ulcers, or any severe ulcers, requires specialist input due to the potential for the development of life-threatening complications, eg septicaemia | Refer individuals with extensive superficial pressure ulcers, or any severe pressure ulcers, for specialist review, unless the individual's condition dictates otherwise Document the nature of referral, eg telephone or letter, and the outcome of the referral |
| All individuals with a pressure ulcer should have a clear plan of management outlined in their health record, including: <ul style="list-style-type: none"> • full individual assessment • any interventions, eg specialist mattresses, cushions or other pressure-relieving devices • full assessment of the pressure ulcer, cause, location, classification, description of the wound, treatment aims and objectives, review date | Pressure ulcers are likely to require a number of weeks or months to heal, depending on their severity and the individual's ambulatory capacity and ability to change his or her own position | Ensure that a full assessment of the pressure ulcer has been undertaken, along with a plan of management: this should include steps to ensure continuity of care between care settings Document initial and ongoing management to prevent further tissue damage |
| The management of the wound bed of a pressure ulcer should adhere to the principles of moist wound management unless the individual's condition dictates otherwise (for example, this may be contraindicated when an individual's condition is terminal and debridement of the pressure ulcer is not appropriate or in the case of a diabetic foot wound a better option for the patient may be to leave any dry eschar undisturbed). The dressings used should not cause trauma to the wound bed and surrounding skin | Wounds managed using products which promote moist wound healing result in enhanced healing rates and reduced infection. However, debridement may not always be the best option for the patient and mummification may be more appropriate in some circumstances (Vowden and Vowden, 2011) | Use products that promote a moist wound environment, unless contraindicated by the individual's condition and record in the health records Do not use dressing materials that adhere to the wound bed and/or cause trauma to the wound bed and surrounding skin |

SECTION 3: MOISTURE-RELATED SKIN DAMAGE

The prevalence of chronic wounds such as venous leg ulcers and pressure ulcers is higher in the population aged over 65 (Posnett and Franks, 2008). Results from local audits of wound care practice in the UK and elsewhere highlight that a relatively high proportion of chronic wounds remain unhealed for long periods.

It is accepted that a degree of moisture is essential for moist wound healing to occur (Winter, 1963). However, the correct moisture balance is difficult to define. The wound needs to be moist, but not too moist or too dry, as this may affect the rate of healing.

MACERATION

Maceration of the skin may be due to any of the following factors:

- incontinence (see page 16)
- excess moisture from sweating due to hot environments/climates and/or induced by a waterproof chair and bed surfaces
- wound exudate
- peri-stomal exudate.

When the skin is in contact with fluid for sustained periods of time, it becomes soft and wrinkled, which may lead to breaks in the epidermis (White and Cutting, 2003). Softening of the tissues, along with attack from enzymes within urine, faeces and wound exudate, can cause the skin to become red, broken and painful. It is important that the skin is protected from these enzymatic onslaughts using appropriate measures (eg application of a skin barrier).

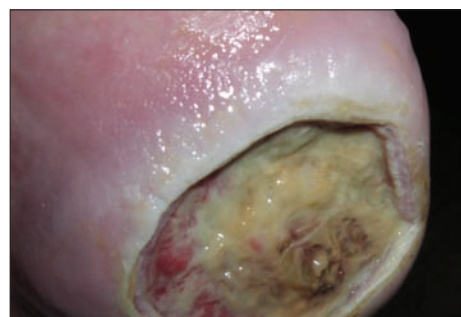


Figure 7: Pressure ulcer to the heel. The surrounding white tissue indicates the presence of maceration

Key points:

1. Peri wound skin damage can occur around chronic wounds as a result of excessive moisture.
2. Peri wound moisture (maceration) can cause skin breakdown, increasing the risk of infection.
3. Appropriate measures should be taken to prevent skin breakdown, eg application of an appropriate skin barrier.

DBPS APPLICATION TO PRACTICE: MOISTURE RELATED SKIN DAMAGE – MACERATION

| Best practice statement | Reason for best practice statement | How to demonstrate best practice |
|--|--|--|
| Assessment should be carried out to determine the cause of maceration | Early detection of skin maceration through identification of the cause may prevent skin breakdown | Document that an assessment has been carried out to determine the cause of maceration |
| Areas of maceration may benefit from the application of a skin protectant, such as a barrier film or cream to prevent further deterioration of the skin's condition | Maceration is likely to occur around wounds and within skin folds that are in contact with each other. Application of a skin protectant, eg barrier film or cream may help reduce the irritant effects of maceration on healthy tissue (Bale, 2004; Bianchi and Hardy, 2012) | Examine areas at risk of maceration and record in the individual's health records Record which skin protectant has been used and frequency of reapplication |
| When selecting a barrier film or cream, ensure that it does not affect the properties of other interventions | Some barrier creams will reduce the adhesion of adhesive dressings and/or reduce the absorbency of continence aids | Check barrier cream does not interfere with efficacy of other treatment interventions |
| Management of the wound should be based on a full assessment to determine why exudate is present, ie whether this is part of normal healing or an infection is present (WUWHS, 2007) | Treatment interventions will be based upon early identification of the cause of the peri wound moisture | Document initial and ongoing management to prevent further tissue damage. Record the volume and viscosity of exudate and its quality, eg haemopurulent, serosanguinous, etc, along with notes to indicate the reason for its presence, eg infection, cardiac failure, limb swelling, etc |

INCONTINENCE

Some studies have shown that older people are more prone to incontinence. In one study, 29% of older people cared for in a nursing home were incontinent of urine, 65% were doubly incontinent, and 6% were catheterised (Bale et al, 2004). Between 1% and 10% of adults are affected with faecal incontinence, depending on the definition and frequency of faecal incontinence used (NICE, 2007).

The skin produces sebum that enables it to maintain a naturally acidic pH, usually between 4.0 and 5.5 (Bianchi, 2012a). The mixing of urine and faeces creates an alkaline skin pH in incontinent patients (Rees and Pagnamenta, 2009). This is due to the production of ammonia when bacteria in the faeces digest urea from the urine. The raised pH around the perianal area, increases protease and lipase activity, causing skin irritation (Berg, 1986; Le Lievre, 2000). This is responsible for the dermatitis excoriation seen in individuals with incontinence (Fiers, 1996, Gray et al 2007).

The increase in moisture resulting from episodes of incontinence, combined with bacterial and enzymatic activity, leads to the breakdown of vulnerable skin, particularly in those who are very young or elderly (Beeckman et al, 2009). For those individuals suffering the effects of irritation from incontinence, it is important to avoid exacerbating this further through inappropriate methods of cleansing the skin (Whittingham, 1998). A protective barrier spray or cream can be used to prevent irritated skin from breaking down further (Benbow, 2012). Advice on assessment and appropriate products to aid management of incontinence can be sought from your local continence advisor. In addition, local services may have a product formulary and/or policy guidelines for the management of incontinent patients. Fitting and correct use of these products can help to prevent skin damage.

Moisture lesions

Skin damage as a result of exposure to excessive moisture is defined as a skin lesion associated with incontinence and not caused by pressure or shear (Defloor et al, 2005a). This may be referred to as a moisture lesion, moisture ulcer, perineal dermatitis, diaper dermatitis or incontinence associated dermatitis (IAD) (Ousey, 2012).

Moisture lesions are often misclassified as pressure ulcers (DeFloor et al, 2005b) and it is therefore important that healthcare practitioners are able to differentiate between the two conditions in order to implement appropriate clinical interventions. The key to these differences lies in the location, shape and depth of the damage (Ousey et al, 2012).

Assessment tools that can be used to identify moisture lesions include:

- The Perineal Assessment Tool (Nix, 2002)
- The Perirectal Skin Assessment Tool (Storer-Brown, 1993)
- IAD Skin Condition Assessment Tool (Kennedy et al, 1996)
- Incontinence associated dermatitis and its severity (IADS) instrument (Borchert et al, 2010)
- The National Association of Tissue Viability Nurses Scotland's skin excoriation tool (NATVNS, 2008)

Moisture lesions due to incontinence will be irregular in shape, have ill-defined 'wandering' edges and often occur over the fatty tissue of the buttock cheeks, the perineum, inner thighs, scrotum and vulva (Guy, 2012).

The management of incontinence requires individual assessment of the causes of the problem and although it is essential to maintain cleanliness of the skin, consideration should be given to the use of urinary and faecal collection systems to protect skin integrity (Ousey et al, 2012). It is important that all nurses undergo training in incontinence and associated incontinence care and to have periodic refresher courses to keep up-to-date.



Figure 8: Incontinence skin reaction

Key points:

1. Incontinence (urine and/or faecal) can increase the risk of skin breakdown.
2. Appropriate measures such as the use of a barrier cream or film, incontinence products and faecal management systems should be taken to prevent skin breakdown.

DBPS APPLICATION TO PRACTICE: MOISTURE-RELATED SKIN DAMAGE — INCONTINENCE

| Best practice statement | Reason for best practice statement | How to demonstrate best practice |
|---|--|--|
| Individuals with incontinence should undergo a holistic nursing assessment that includes questions regarding bladder and/or bowel function/habit | Incontinence is a common problem in older people (Bale et al, 2004). Incontinence can increase an individual's risk of skin damage due to chemical irritation from both urine and faeces | Ensure all nurses have access to information on assessing bowel and bladder incontinence and associated continence care planning. In addition, ensure all nurses have access to appropriate assessment tools Record all holistic nursing assessments and include reference to continence status and any current treatment |
| Unless contraindicated by the individual's physical condition, a full assessment to ascertain the cause of the incontinence is required. This should include a urinalysis to exclude a urinary tract infection that may be contributing to/causing the problem | Incontinence is a symptom, not a diagnosis. Assessment is crucial to determine the type of incontinence (Cheater et al, 1992) | Record findings from the assessment and indicate where further action is required, along with subsequent action taken in the individual's health records |
| An individual's continence status should be reassessed regularly, or according to the individual's condition | Changes in incontinence (incontinence pattern, cleansing regimen and continence aids used) can contribute to the development of skin breakdown | Ensure a clear plan of care is in place for incontinence. Record episodes of incontinence and indicate action taken. The use of a bladder/bowel diary may be helpful. Document that regular skin inspection takes place at opportune times, eg during assistance with personal hygiene |
| If skin is excoriated or broken, barrier products should be selected based on clinical appropriateness and patient preference. These should be used correctly and according to the manufacturer's instructions Urinary or faecal containment products should be considered. Use Bristol stool scale (see http://www.sthk.nhs.uk/library/documents/stoolchart.pdf) to help assess episodes of faecal incontinence and rule out any faecal impaction/constipation Continence management should be reviewed regularly, or according to the individual's condition | The skin of patients with incontinence is sensitive and should be protected from urine and faeces. Barrier creams can be used to help maintain its natural protective function, while urinary and faecal management systems can help to avoid contact with urine and faeces. Some barrier creams can be used on intact skin only. Barrier films can be used on intact and/or broken skin to act as a barrier against further irritation from incontinence. Some oil-based creams can affect absorbency of incontinence pads, although if used correctly are suitable. Water-based barrier creams do not affect incontinence products. Reapplication and use should be in accordance with the individual manufacturer's instructions. | Document evidence of skin care protocol and continence products used Seek advice of a continence advisor for specialised management where people continue to have episodes of urinary or faecal incontinence after failure of the initial management plan |
| Soap and water should not be used when cleansing following episodes of incontinence. Use foam cleansers as part of a cleansing regimen for individuals with incontinence. Soft, pre-moistened washcloths, impregnated with dimethicone to protect skin are now available and widely used | Cleansing with soap and water can irritate vulnerable skin, increasing the risk of skin breakdown | Record frequency of cleansing regimen including skin cleansing products used |

SECTION 4: SKIN TEARS

Skin tears occur in those with fragile skin, including neonates and more frequently in the elderly (Carville et al, 2007). They were first defined by Payne and Martin in 1993 and more recently by LeBlanc and Baranoski (2011) as traumatic injuries that may occur due to shear, friction and/or a blunt force resulting in the separation of skin layers. A skin tear can be partial thickness (separation of the epidermis from the dermis) or full thickness (separation of both the epidermis and dermis from the underlying structures).

Patients who are elderly or dependent on others have a higher risk of sustaining skin tears (Stephen-Haynes and Carville, 2011). As the skin ages, pathological skin changes occur, causing the skin to become very fragile and even the simplest bump or knock can cause tissue damage (Langemo and Brown, 2006; Voegeli, 2010; Voegeli, 2012).

Skin tears are often caused as a result of trauma (commonly shear and friction) where the

epidermis is displaced, but still retains a blood supply. In the elderly, skin tears are often sustained on the extremities (Ousey, 2009). For those with existing wounds, care should be taken with adhesive tapes and dressings, which can cause skin trauma on removal (Waring et al, 2011).

Skin tears are perceived to be common among the elderly but are often mismanaged and misdiagnosed (LeBlanc and Baranoski, 2011), leading to complications, including pain, infection and delayed wound healing.

Tools are available for the practitioner to use when assessing a patient who has sustained a skin tear. The Payne-Martin Classification System for Skin Tears (Payne and Martin, 1993 — see Table 5) and the STAR Skin Tear Classification System (Carville et al, 2007 — see Figure 9) allow the degree of severity to be classified and documented. Referral to local guidance should identify the classification tool used in individual health care areas.

Key points:

1. Assess for risk on admission to healthcare services.
2. Implement a systematic prevention protocol and ensure safe patient handling techniques, equipment and environment.
3. If treated quickly, realigning a skin tear flap can encourage wound healing.
4. Appropriate measures should be taken to manage skin tears using a systematic approach.
5. Adhesive tapes and dressings may cause skin trauma on removal; select products proven to be atraumatic.

| Category I | Without tissue loss | In a linear or flap type skin tear. The epidermis and dermis have been pulled apart, as if an incision has been made |
|--------------|---|--|
| Category II | Partial skin loss 25% or less 25% or more | Where part of the epidermis is lost. This can be categorised as less than 25% or more than 25% tissue loss |
| Category III | Full thickness skin loss | The epidermal flap or tissue is absent in this type of skin tear |



Figure 9: STAR Classification System (Carville et al, 2007). Silver Chain Nursing Association and School of Nursing and Midwifery, Curtin University of Technology. Revised 4/2/2010. Available at: <http://www.silverchain.org.au/assets/GROUP/research/STAR-Skin-Tear-tool-04022010.pdf>

Bianchi (2012b) states that the most important aspect of assessment and management is to minimise further trauma and preserve viable tissue. The international consensus group for the prevention and management of skin tears (LeBlanc and Baronski, 2011) recommend the following prevention principles:

- Assess for risk on admission to healthcare services and whenever the patient’s condition changes
- Implement a systematic prevention protocol
- Ensure those at risk wear long sleeves, long trousers or knee-high socks
- Provide shin guards/leg protectors for those who experience repeat skin tears on the shins
- Ensure safe patient-handling techniques and equipment/environment
- Involve patients and families in prevention strategies
- Educate nursing staff and caregivers to ensure proper techniques for providing care without causing skin tears
- Consult a dietitian to ensure adequate nutrition and hydration
- Keep skin well lubricated by applying a hypoallergenic moisturiser at least twice a day
- Protect people at high risk of trauma during routine care from self-injury.

Other authors have suggested the following key principles for the management of skin tears:

- Bleeding should be controlled
- The wound should be cleansed with warm saline or water to remove debris
- Approximation of the skin flap should be undertaken by gently easing it back into place using a dampened cotton bud or gloved finger (if the flap is difficult to align use a moistened non-woven swab)
- An appropriate dressing should be used to maintain moist wound healing. If an opaque dressing is used, an arrow should be placed on the dressing to indicate the preferred direction of removal and recorded in the notes. It is recommended that adhesive strips should be avoided and sutures or staples should only be used if the wound is considered to be a full thickness laceration. Dressings should remain *in situ* for several days to avoid trauma to the flap and secured with bandages or stocking-like products (Bianchi, 2012b; Stephen-Haynes and Carville, 2011).

In addition, any management plan should include strategies to prevent further skin tears from developing and/or prevent further skin breakdown. These include implementing a good skin care regimen and creating a safe home or care environment. Patients and carers should be encouraged to be involved in their care and provided with the necessary education (Stephen-Haynes and Carville, 2011).

DBPS APPLICATION TO PRACTICE: SKIN TEARS

| Best practice statement | Reason for best practice statement | How to demonstrate best practice |
|---|---|---|
| Assessment should be carried out to determine the cause of the skin tear | Early detection of skin trauma through identification of the cause may prevent further skin breakdown (Bianchi, 2012b) | Record whether a full assessment has been undertaken and that the cause of the skin tear has been removed |
| The skin tear should be classified (see page 18) using an appropriate classification system to assess degree of tissue damage | Classification of the damage enables appropriate treatment to be initiated and maintained | Refer to local guidance for approved classification tool and document in health records |
| Management principles should be: <ul style="list-style-type: none"> ● Control bleeding and clean the wound according to protocol ● Realign (if possible) any skin or flap ● Assess degree of tissue loss and skin or flap colour using an appropriate classification system (eg STAR) ● Assess the surrounding skin condition for fragility, welling, discolouration or bruising ● Assess the person, the wound and the healing environment as per local protocol ● If skin flap is pale and dusky/darkened, reassess within 24-48 hours (Carville et al, 2007) | Wounds that are managed using a systematic approach, result in enhanced healing rates and reduced infection rates (Stephen-Haynes and Carville, 2011) | Record initial and ongoing management in the individual’s health records Document all interventions clearly in the health records with re-evaluation dates Document any signs of improvement or deterioration (eg increased pain, exudate, heat, oedema and malodour) at each dressing change. Minimise pain and discomfort and record pain assessment scores |

SECTION 5: SKIN CHANGES AT LIFE'S END

Healthcare professionals have been conscious for some time that as a person reaches life's end there is a significant loss of tissue and organ function (Beldon, 2010). Most signs are hidden, however some are more pronounced. In particular, reduced circulation and skin function can, in conjunction with incontinence, result in the development of pressure damage.

This led Kennedy (1989) to record the Kennedy Terminal Ulcer (KTU), which identifies a specific subgroup of pressure ulcers developed by some individuals as they are dying. These are usually butterfly-shaped and situated predominantly, but not exclusively, over the buttocks (Kennedy, 1989).

This finding has generated interest with research undertaken in palliative care settings:

- Bale et al (1995) found a pressure ulcer prevalence of 24% in hospice residents.
- Hanson et al (1991) reported that 62.5% of pressure ulcers in hospice patients occurred within two weeks prior to death.
- Reifsnnyder and Magee (2005) noted that pressure ulcers on individuals in a hospice setting were more prevalent in those who had a previous history of pressure ulceration or dementia.
- Galvin (2002) performed an audit cycle in a hospice setting to discover whether the incidence of pressure ulceration could be reduced. He concluded that pressure damage at the end of life in some individuals may be inevitable, coining the term 'skin failure' (Figure 10).

In 2010, an expert panel formulated a consensus statement on *Skin Changes At Life's End* (SCALE; Sibbald et al, 2010). This proposed that the skin is not impervious to dysfunction at the end of life and that this may result in varying degrees of skin/tissue damage, including pressure ulceration. The panel concluded that: 'Our current comprehension of skin changes that can occur at life's end is limited: the SCALE process is insidious and difficult to prospectively determine; additional

research and expert consensus is necessary; and contrary to popular myth not all pressure ulcers are avoidable.'

Healthcare professionals engaged in caring for those patients during the final months of their lives have noted that, despite providing good skin care, repositioning, appropriate pressure-relieving equipment and optimising nutrition, some patients still develop a pressure ulcer. This outcome has been a source of frustration for healthcare professionals and is regarded as a failure of care by patients/relatives, leading to complaints and litigation. Clearly, communication has a large part to play. Healthcare professionals need to engage with patients and their relatives to alert them to the possibility of pressure damage as a result of skin failure.

The statements in the SCALE document support the inclusion of a palliative care risk assessment tool and bear a distinct resemblance to the aims of the Liverpool Care Pathway (LCP; Marie Curie Palliative Care Institute, 2009), including:

- communication with the individual and his/her family and friends
- considering the patient's desire to mobilise or sit in a chair rather than be in bed
- the form of risk assessment and documentation of care delivery
- the involvement of a TVN to provide expert opinion as to whether the patient's pressure damage could be avoided or not.

The LCP has been implemented in many care settings and has proven to be an invaluable tool in caring for those patients at life's end, when no further active treatment is delivered and the emphasis of care lies in symptom control to enable the individual to die with comfort and dignity. The SCALE publication raises the question that perhaps the inclusion of a risk assessment process within the LCP is required, to indicate whether specific pressure-relieving equipment should be used. This assessment should be based on whether the patient has flexion contractures that limit repositioning, or the patient does not want to be repositioned.

Key points:

1. The skin can become compromised at life's end. This has been termed, Skin Changes At Life's End (SCALE).
2. Despite providing good skin care, patients who suffer extremely debilitating effects during the final months of their lives, can still develop pressure damage.
3. Risk assessment as to whether a patient's pressure damage could be avoided or not and delivery of appropriate care to the dying in all care settings is vital.

The SCALE instrument is the first of its kind to admit that pressure ulceration may be part of the dying process. Now it falls to healthcare professionals, whether working in primary, secondary care, nursing homes or hospices, to ensure that this is acknowledged and that all appropriate means are taken so that the dying patient's skin remains intact where possible.

For a pressure ulcer to be classified as a SCALE ulcer, and not pressure damage of any other aetiology, the following criteria are proposed:

- Document a care plan, staff adherence to the plan, and patient response
- Prioritise patient-centred concerns such as pain management and fluid and nutritional intake
- Implement appropriate pressure-relieving equipment
- Implement team planning including the patient and relatives, as appropriate

- Assess the following signs and symptoms:
 - Muscle weakness and immobility
 - Loss of appetite, weight loss, muscle wasting, dehydration
 - Reduced skin perfusion of blood and oxygen
 - Incontinence and loss of skin integrity
 - Reduced immune function, increased infection risk
 - Peripheral vascular function, ischaemic ulceration
- Perform a regular total skin assessment
- Seek expert advice for skin changes associated with pain, infection and skin breakdown
- Adjust goals of care to account for skin changes and palliation
- Inform the patient and relatives regarding SCALE and the care plan.



Figure 10: Skin failure in a patient at the end of life

DBPS APPLICATION TO PRACTICE: SKIN CHANGES AT LIFE'S END (BASED ON SIBBALD ET AL, 2010)

| Best practice statement | Reason for best practice statement | How to demonstrate best practice |
|--|--|---|
| All end-of-life patients should have a total skin assessment performed regularly to ascertain level of risk for skin failure/pressure ulceration. Special attention should be given to bony prominences and skin areas with underlying cartilage | The dying process compromises the homeostatic mechanisms of the body, which may lead to a number of vital organs becoming compromised. This can lead to skin complications, including gangrene, infection and pressure ulceration. Diminished tissue perfusion is the most significant risk factor for SCALE | Document that a whole body assessment has been carried out. Describe the skin or wound abnormality exactly as assessed. An accurate diagnosis should lead to decisions about treatment and will determine if the ulcer is healable within the patient's life expectancy, should be maintained or is non-healable/palliative |
| A plan of care should be implemented that includes application of appropriate interventions that are consistent with the patient's wishes and recognised guidelines for care | A comprehensive, individualised plan of care should not only address the patient's skin changes, but any patient concerns that impact on quality of life, including pain and activities of daily living | Document the patient's clinical condition including co-morbidities, pressure ulcer risk factors, significant changes and clinical interventions in the health records If adherence to the plan of care cannot be achieved, document any alternative plans proposed if available and feasible |
| Expectations around the patient's end-of-life goals and concerns should be communicated among the members of the interprofessional team and the patient's circle of care. This must be supported by education regarding SCALE and the plan of care | Expectations surrounding end-of-life issues need to be realistic with input from the patient if possible The patient's circle of care needs to be aware that an individual at the end of life may develop skin breakdown, even when care is appropriate Care decisions must be made with the total goals of the patient in mind. Comfort may be the overriding and acceptable goal, even though it may be in conflict with best skin care practice | Document any communication with the interprofessional teams and the patient's circle of care. Use defined descriptive terms for skin changes to facilitate communication between healthcare professionals Include the patient's circle of care in the decision-making process regarding goals of care. Document all decision making, educational efforts and patient's circle of care perspective in the health records Show evidence of collaboration across healthcare settings and disciplines and ability of staff to identify and manage SCALE |

REFERENCES

- All Wales Tissue Viability Nurses Forum (2011) Guidelines for the Assessment and Management of Skin Tears Available at: http://welshwoundnetwork.org/dmdocuments/all_wales-skin_tear-brochure.pdf
- Ayer G (2010) Hydromol® Intensive. *Dermatol Nurs* 9(3): 24–27.
- Bale S, Finlay I, Harding KG (1995) Pressure sore prevention in a hospice. *J Wound Care* 4(10): 465–8.
- Bale S, Tebble N, Jones VJ, Price PE (2004) The benefits of introducing a new skin care protocol in patients cared for in nursing homes. *J Tissue Viability* 14(2): 44–50.
- Banks MD, Graves N, Bauer JD, Ash S (2012) Cost effectiveness of nutrition support in the prevention of pressure ulcers in hospitals. *Eur J Clin Nutr* doi 10.1038/ejcn.2012.140.
- Baranoski S, Ayello EA (2004) *Wound Care Essentials, Practice Principles*. Lippincott, Williams and Wilkins, Springhouse, PA.
- Beeckman D, Schoonhoven L, Verhage S, Heyneman A, Defloor T (2009) Prevention and treatment of incontinence-associated dermatitis: literature review. *J Adv Nurs* 65(6): 1141–54.
- Beldon P (2006) Pressure Ulcers: prevention and management. *Wound Essentials* 1: 68–81.
- Beldon P (2010) Skin changes at life's end (SCALE); consensus document. *Wounds UK* 6(1): 169–70.
- Benbow M (2012) Skin care of the incontinent patient. *J Community Nurs* 26(2): 31–7.
- Bennett MA (1995) Report of the task force on the implications of darkly pigmented intact skin in the prediction and prevention of pressure ulcers. *Adv Wound Care* 8(6): 34–5.
- Berg RW (1986) Etiology and pathophysiology of diameter dermatitis. *Adv Dermatol* 3: 102–6.
- Bianchi J, Page B, Robertson S (2011) *Your Dermatology Pocket Guide: Common skin conditions explained*. NES: Edinburgh.
- Bianchi J (2012a) Causes and strategies for moisture lesions. *Nursing Times* 108(5): 20–22.
- Bianchi J (2012b) Preventing, assessing and managing skin tears. *Nursing Times* 108(13): 12–16.
- Bianchi J, Hardy D (2012) Cation skin care products made easy. *Wounds UK* 8(1). Available from: http://www.wounds-uk.com/pdf/content_10300.pdf
- Bikowski J (2001) The use of therapeutic moisturizers in various dermatologic disorders. *Cutis* 68(5 Suppl): 3–11.
- Borchert K, Bliss DZ, Savik K, Radosevich DM (2010) The incontinence-associated dermatitis and its severity instrument: development and validation. *J Wound Ostomy Continence Nurs* 2010; 37(5): 527–35.
- British Association of Dermatologists/Primary Care Dermatology Society (2006) Guidelines for the management of atopic eczema. Guideline 28; 372–375.
- British National Formulary. British Medical Association and the Royal Pharmaceutical Society of Great Britain, London.
- Britton J (2003) The use of emollients and their correct application. *J Community Nurs* 17(9): 22–5.
- Buckingham KW, Berg RW (1986) Etiologic factors in diaper dermatitis: the role of feces. *Pediatr Dermatol* 3(2): 107–12.
- Butcher M, White R (2005) The structure and functions of the skin. In: White R, ed. *Skin Care in Wound Management: Assessment, prevention and treatment*. Wounds UK, Aberdeen: 1–16.
- Caliano C (2002) Patient hygiene, Part 2 – skin care: keeping the outside healthy. *Nursing* 29(12): suppl 1–11; quiz 12–3
- Carville K, Lewin G, Newall N, et al (2007) STAR: a consensus for skin tear classification. *Primary Intention* 15(1): 18–28.
- Cheater F, Lakhani M, Cawood C (1999) Assessment of patients with urinary incontinence: evidence-based audit protocol for primary healthcare teams. Department of General Practice and Primary health Care, University of Leicester. Protocol CT15. Available online at: www.leac.uk/cgrdu/protocol.html
- Clark M, Black J (2011) Skin IQ™ Microclimate Made Easy. *Wounds International* 2(2). Available from www.woundsinternational.com
- Collier M (1996) Pressure-reducing mattresses. *J Wound Care* 5(5): 207–11.
- Collins F (2000) Selecting the most appropriate armchair for patients. *J Wound Care* 9(2): 73–6.
- Cooper P, Gray D (2001) Comparison of two skin care regimes for incontinence. *Br J Nurs* (Supplement) 10(6): 6–20.
- Cooper P, Gray D (2008) Comparing Tena Wash Mousse with Clinisan Foam Cleanser: the results of a comparative study. *Wounds UK* 4(3): 12–21.
- Cork MJ, Danby S (2009) Skin barrier breakdown: a renaissance in emollient therapy. *Br J Nurs* 12;18(14):872, 874, 876–7.
- Cowdell F (2009) Care and management of patients with pruritus. *Nursing Older People* 21(7): 35–41.
- Cowdell F (2011) Older People, personal hygiene, and skin care (Clinical Practice) (Report). *MedSurg Nursing* 20(5): 235–40.
- Cullum N, Deeks J, Sheldon T, et al (2001) Beds, mattresses and cushions for pressure ulcer prevention and treatment. Cochrane Database of Systematic Reviews (2): (CD001735) (last substantive update May 2004)
- Dealey C (1994) *The Care of Wounds*. Blackwell Science, Oxford.
- Defloor T (2000) The effect of position and mattress on interface pressure. *Appl Nurs Res* 13(1): 2–11.
- Defloor T, Schoonhoven L, Fletcher J, et al. (2005a) Pressure Ulcer Classification differentiation between pressure ulcers and moisture lesions. European Pressure Ulcer Advisory Panel Available at: http://www.epuap.org/archived_reviews/EPUAP_Rev6.3.pdf
- Defloor T, De Bacquer, DD, Grypdonck, MH (2005b) The effect of a pressure reducing mattress on turning intervals in geriatric patients at risk of developing pressure ulcers. *Int J Nurs Studies* 42(1): 37–46.

- Department of Health (2000) *No Secrets: guidance on developing and implementing multi-agency policies and procedures to protect vulnerable adults from abuse*. Available from: www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4008486
- Department of Health (2010) *Defining Avoidable and Unavoidable Pressure Ulcers*. <http://www.patientsafetyfirst.nhs.uk/ashx/Asset.ashx?path=/PressureUlcers/Defining%20avoidable%20and%20unavoidable%20pressure%20ulcers.pdf>
- Department of Health (2011) *Safe Care*. http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Healthcare/Qualityandproductivity/QIPPworkstreams/DH_115447
- Ersser SJ, Maguire S, Nicol H, et al (2009) Best Practice in Emollient Therapy. A statement for healthcare professionals. *Dermatological Nurs Suppl* 8(3):1–22
- European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel (2009) *Prevention and treatment of pressure ulcers: quick reference guide*. Available: http://www.epuap.org/archived_reviews/EPUAP_Rev6.3.pdf
- Fiers SA (1996) Breaking the cycle: The etiology of incontinence dermatitis and evaluating and using skin care products. *Ostomy Wound Manage* 42(3): 33–43.
- Flanagan M, Fletcher J (2003) Tissue Viability: Managing chronic wounds. In: Booker C, Nicol M, eds. *Nursing Adults: The Practice of Caring*. Mosby, St Louis.
- Fletcher J (2012) Device-related pressure ulcers made easy. *Wounds UK* 8(2). Available from: <http://www.woundsinternational.com/made-easy/device-related-pressure-ulcers-made-easy>
- Fletcher J, Moore Z, Anderson I, Matsuzaki K (2011) Pressure ulcers and hydrocolloids made easy. *Wounds International* 2(4). Available from: http://www.woundsinternational.com/pdf/content_10143.pdf
- Galvin J (2002) An audit of pressure ulcer incidence in a palliative care setting. *Int J Palliat Nurs* 8(5): 214–21.
- Gebhardt K, Bliss MR (1994) Preventing pressure sores in orthopaedic patients — is prolonged chair nursing detrimental? *J Tissue Viability* 4(2): 51–4.
- Gray M, Bliss D, Doughty D, et al (2007) Incontinence-associated dermatitis: a consensus. *J Wound Ostomy Continence Nurs* 34(1): 45–54.
- Günnewicht B, Dunford C (2004) *Fundamental Aspects of Tissue Viability Nursing*. Quay Books, MA Healthcare, London.
- Guy H (2012) The difference between moisture lesions and pressure ulcers. *Wound Essentials* 1:36–44.
- Hanson D, Langema DK, Olsen B, et al (1991) The prevalence and incidence of pressure ulcers in the hospice setting: analysis of two methodologies. *Am J Hosp Palliat Care* 8(5): 18–22.
- Haroun MT (2003) Dry skin in the elderly. *Geriatrics and Ageing* 16(6): 40–44.
- International Review (2010) *Pressure ulcer prevention: pressure, shear, friction and microclimate in context*. Wounds International: London. Available from: http://www.woundsinternational.com/pdf/content_8925.pdf
- Kennedy KL (1989) The prevalence of pressure ulcers in an intermediate care facility. *Decubitus* 2(2): 44–5.
- Kennedy K, Leighton B, Lutz J (1996) Cost-effectiveness evaluation of a new alcohol-free film-forming incontinence skin protectant. White paper. St Paul, MN: 3M Healthcare.
- Langemo DK, Brown G (2006) Skin fails too: acute, chronic, and end-stage skin failure. *Adv Skin Wound Care* 19(4): 206–11.
- Langøen A (2010) Innovations in care of the skin surrounding pressure ulcers. *Wounds International* 1(4): Available from <http://www.woundsinternational.com>
- Lawton S (2007) Skin barrier function and the use of emollients in dermatological nursing. *Br J Nurs* 16(12): 712, 714, 716, 718–9.
- Lawton S (2009) Practical issues of emollient therapy in dry and itchy skin. *Br J Nurs* 18; 12: S8–S11.
- LeBlanc K, Baranoski S (2011) Skin tears: State of the science: Consensus statement for the prevention, prediction, assessment and treatment of skin tears. *Adv Skin Wound Care* 24(9): 2–15.
- Le Lievre S (2000) Care of the incontinent client's skin. *J Community Nurs* 14(2): 26–32.
- McInnes E (2004) The use of pressure-relieving devices (beds, mattresses and overlays) for the prevention of pressure ulcers in primary and secondary care. *J Tissue Viability* 14(1): 4–6, 8, 10 passim.
- Marie Curie Palliative Care Institute (2009) *What is the LCP?* Marie Curie Palliative Care Institute, Liverpool. Available online at: [http://www.liv.ac.uk/media/livacuk/mcpcil/migrated-files/liverpool-care-pathway/updatedlcpdocs/LCP_V12_Core_Documentation_FINAL_\(Example\).pdf](http://www.liv.ac.uk/media/livacuk/mcpcil/migrated-files/liverpool-care-pathway/updatedlcpdocs/LCP_V12_Core_Documentation_FINAL_(Example).pdf)
- Moore Z, van Etten M (2011) Repositioning and pressure ulcer prevention in the seated individual. *Wounds UK* 7(3): 34–40.
- National Association of Tissue Viability Nurses Scotland (NATVNS) (2008) *Skin Excoriation Tool for Incontinent Patients*. Edinburgh: Available from: http://www.healthcareimprovementscotland.org/programmes/patient_safety/tissue_viability_resources/excoriation_tool.aspx
- National Institute for Health and Clinical Excellence (2004) *Atopic dermatitis (eczema) – pimecrolimus and tacrolimus (TA82)*. Quick reference guide. NICE, London. Available online at: <http://guidance.nice.org.uk/TA82/QuickRefGuide/pdf/English>
- National Institute for Health and Clinical Excellence (2005) *CG29 Pressure ulcer management*: Quick reference guide. NICE, London. Available online at: <http://guidance.nice.org.uk/CG29/QuickRefGuide/pdf/English>

- National Institute for Health and Clinical Excellence (2007) *The management of faecal incontinence in adults* NICE Guideline 49. NICE, London. Available from: <http://guidance.nice.org.uk/CG49/QuickRefGuide/pdf/English>
- NHS Institute for Innovation and Improvement (2010) *High Impact Actions for Nursing and Midwifery*. Available at: <http://www.institute.nhs.uk>
- NHS Quality Improvement Scotland NHS Quality Improvement Scotland (2009) *Best Practice Statement. Prevention and Management of Pressure Ulcers*. Available from: www.healthcareimprovementscotland.org
- Nix DH (2002) Validity and reliability of the perineal assessment tool. *Ostomy Wound Manage* 48(2): 43–46, 48–49.
- Nixon J, Cranny G, Bond S (2007) Skin alterations of intact skin and risk factors associated with pressure ulcer development in surgical patients: a cohort study. *Int J Nurs Studies* 44(5): 655–63.
- Office of National Statistics (2012) *Results, 2010-based NPP Reference Volume*. Available from: www.ons.gov.uk/ons/dcp171776_253934.pdf
- Ousey, K (2009) Identifying, managing and treating skin tears. *J Comm Nurs* 23(9): 18–22.
- Ousey K, Bianchi J, Beldon P, Young T (2012) Identification and treatment of moisture lesions. *Wounds UK* (Suppl). Available from: www.wounds-uk.com
- Patel T, Yosipovitch G (2010) The management of chronic pruritus in the elderly. *Skin Ther Lett* 15(8): 5–9.
- Paul C, Maumus-Robert S, Mazereeuw-Hautier J, et al (2011) Prevalence and risk factors for xerosis in the elderly: a cross-sectional study in primary care. *Dermatology* 223; 260–65.
- Payne RL, Martin MC (1993) Defining and classifying skin tears: need for a common language. *Ostomy Wound Manage* 39(5): 16–26.
- Posnett J, Franks P (2008) The burden of chronic wounds in the UK. *Nursing Times* 104: 3, 44–45.
- Rawlings AV, Harding CR (2004) Moisturization and skin barrier function. *Dermatol Ther* 17 Suppl 1: 43–8.
- Reifsynder J, Magee H (2005) Development of pressure ulcers in patients receiving home hospice care. *Wounds* 17(4): 74–9.
- Rees J, Pagnamenta F (2009) Best practice guidelines for the prevention and management of incontinence dermatitis. *Nursing Times* 105(36): 24–6.
- Sander S, Schafer I, Phan N (2010) Prevalence of chronic pruritus in Germany. *Dermatology* 221; 229–35.
- Sibbald RG, Krasner DL, Lutz JB (2010) *SCALE: Skin Changes at Life's End*. Final Consensus Document. *Adv Skin Wound Care* 23(5); 225–36.
- Stephen-Hayes J, Carville K (2011) Skin tears made easy. *Wounds International*; 2(4). Available from: www.woundsinternational.com
- Storer-Brown D (1993) Perineal dermatitis: can we measure it? *Ostomy Wound Manage* 39(7): 28–30, 31.
- Timmons J (2006) Skin function and wound healing physiology. *Wound Essentials* 1: 8–17.
- Tissue Viability Society (2012) *Achieving Consensus in Pressure Ulcer Reporting*. Available from: <http://www.tvsv.org.uk/sitedocument/TVSConsensusPUReporting.pdf>
- Voegeli D (2007) Factors that exacerbate skin breakdown and ulceration, In: *Skin Breakdown, the silent epidemic*. Smith and Nephew Foundation. Hull.
- Voegeli D (2008) The effect of washing and drying practices on skin barrier function. *J Wound Ostomy Continence Nurs* 2008; 35(1): 84–90.
- Voegeli D (2010) Basic essentials: why elderly skin requires special treatment. *Nursing and Residential Care*; 12(9): 422–29.
- Voegeli D (2012) Moisture-associated skin damage: aetiology, prevention and treatment. *Br J Nurs* 21(9): 517–21.
- Vowden K, Vowden P (2011) Debridement made easy. *Wounds UK* 7(4). Available from: www.wounds-uk.com/pdf/content_10133.pdf
- Waring M, Bielfeldt S, Mätzold K, et al (2011) An evaluation of the skin stripping of wound dressing adhesives. *J Wound Care* 20(9): 412, 414, 416–22.
- Watkins J (2011) Early identification of skin problems in older patients. *Br J Health Care Assistants* 5(9): 424–28.
- White RJ, Cutting KF (2003) Interventions to avoid maceration of the skin and wound bed. *Br J Nurs* 12(20): 1186–203.
- Whittingham K (1998) Cleansing regimes for continence care. *Prof Nurse* 14(3): 167–72.
- Wilson M (2011) How to... Ten top tips: preventing pressure ulcers. *Wounds International* 2(3) <http://www.woundsinternational.com/practice-development/how-to-ten-top-tips-preventing-pressure-ulcers>
- Wingfield C (2011) Managing dry skin conditions. *Wound Essentials* 6; 50–59.
- Winter GD (1963) Formation of the scab and the rate of epithelialisation of superficial wounds in the skin of the young domestic pig. *Nature* 193(4812): 293–4.
- World Union of Wound Healing Society (2007) *Principles of best practice: Wound exudate and the role of dressings*. MEP Ltd: London. Available from: http://www.woundsinternational.com/pdf/content_42.pdf
- World Union of Wound Healing Society (2008) *Principles of best practice: Vacuum assisted closure: recommendations for use*. MEP Ltd: London. Available from: http://www.woundsinternational.com/pdf/content_37.pdf
- Young T (2004) The 30-degree tilt position vs the 90-degree lateral and supine positions in reducing the incidence of non-blanching erythema in a hospital inpatient population: a randomised controlled trial. *J Tissue Viability* 14(3): 88, 90, 92–6.

Wounds_{UK}