

# Pressure Ulcer

## ***Prevention and Management Policy and Educational Resource Book***

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## 1. Policy Statement and Aims

Patients receiving care in all health care settings in Bradford and Airedale will have their risk of pressure ulcer development assessed and be given appropriate preventive care and/or treatment.

This policy aims to standardise and influence care and be equitable and accessible to all health care professionals and carers:

1. To prevent the development of pressure ulcers by implementing individualised treatment plans and to effectively manage existing pressure ulcers.
2. To standardize the assessment and management of individuals who are at risk of developing pressure ulcers or who have existing pressure ulcers.
3. To support families, carers and healthcare professionals with a framework for the prevention and management of pressure ulcers.

### 1.1 Key roles and responsibilities

#### Scope

- This policy is relevant to all health service staff directly or indirectly involved in the management of patients.

#### Chief Nurse

- The Chief Nurse, on behalf of the Chief Executive, will ensure that a comprehensive policy for pressure ulcer prevention and management within the Trust is developed, agreed and reviewed.

#### Nurse Consultant (Wound Care)

- Will ensure that the policy is updated in line with current best practice and that it follows both National and International guidance.
- Will ensure supporting clinical and educational expertise.

#### General Managers

- Will ensure that the policy is implemented within their area of responsibility.
- Will ensure the provision of pressure reducing/relieving equipment within their areas taking clinical effectiveness, educational requirements of staff and financial factors into account.

#### Service Managers/Locality Managers/Managers of Care Homes

- Will ensure all staff in their areas are aware of and understand the policy.
- Will ensure compliance with the audit requirements of the policy.
- Will investigate failure to comply with the policy.
- Will take managerial action to prevent recurrence of reported incidents.

## **Ward Managers, caseload holders and Community TVNs**

- Will ensure that all staff are aware of the policy and adhere to it.
- Will identify training needs and ensure staff are appropriately trained in pressure ulcer prevention and management, and will record all training.
- Will incorporate pressure ulcer prevention and management into staff performance review and the knowledge and skills framework.
- Will use the available resources to ensure patients are provided with the correct pressure redistributing equipment.
- Will ensure the patient service manager is aware of all incidents/failures to comply with the policy.
- Will ensure availability of patient information leaflets.

## **All staff**

- Will adhere to this policy.
- Will use the information provided at clinical level to ensure correct choice of pressure reducing/relieving equipment and use this in a safe manner assessing risk as part of patient care.
- Will identify their training need and make their managers aware of training deficit.
- Will maintain personal records of all training.
- Will report all clinical incidents around pressure ulcer prevention and management.

## **Tissue Viability Nurses and Practice Development staff**

- Practice Development and Wound Healing Unit staff in the Hospitals and Tissue Viability Nurses in the Community will be responsible for leading the yearly audit of pressure ulcer prevalence and liaising with other members of the appropriate Trust to ensure clinical practice is developed in line with evidence and best practice guidance.

## **1.2 Policy Objectives:**

The prevention and treatment of pressure ulcers is very complex and clinical judgment must be exercised in deciding the most appropriate care for at risk patients. The qualified nurse / midwife / care home manager, in collaboration with other health care professionals will:

1. Conduct a structured risk assessment on admission, and repeat as frequently as required by the individual's condition.
  - a. Use a recognised risk assessment tool e.g. Waterlow (Hospital care – Appendix 1) or Maelor (Community care – Appendix 2).
  - b. Perform local skin assessment of at risk areas acknowledging any changes to intact skin.
  - c. Record the patient's level of activity and mobility.
  - d. Document any changes using the European Pressure Ulcer Advisory Panel (EPUAP)/National Pressure Ulcer Advisory Panel (NPUAP) grading categories (Appendix 3).

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- e. Document and act on the patient's nutritional status – using the MUST nutritional assessment tool as indicated Appendix 4.
2. Develop and implement an individualised plan of care to prevent or treat pressure ulcers, taking into account the support system required, repositioning regimen and the skin, continence and any wound care needs with reference to:
  - a. Selection of appropriate pressure redistributing equipment ensuring the care needs of a patient over a 24 hour period
  - b. Wound Care Policy
  - c. Patient Moving and Handling Policy
  - d. Nutritional Policy
  - e. Infection Control Policy
3. Prioritise the timing of the risk assessment and intervention within the patient's immediate clinical needs. This will occur within a maximum of 2 hours of admission into care or at the initial assessment.
4. Reassessment should be undertaken if there is any change in the patient's condition or care setting.
5. Work collaboratively with other professionals in addressing the needs of the at-risk patient and ensure continuity of care.
6. When a pressure ulcer is present a wound assessment should be completed in line with the Wound Management Policy 2010 and appropriate wound care provided.
7. Evaluate and document the effectiveness of preventative measures and/or treatment.
8. Report Category (Grade) 2, 3 or 4 pressure ulcers as a clinical incident. Patients considered at risk of harm or negligence will be referred to the adult protection team and this may involve investigation according to the "No Secrets" (DH, 1999) procedure (see Appendix 10).
9. Root cause analysis is undertaken in conjunction with, and following advice from the Wound Care or Tissue Viability Team for all Category (Grade) 3 and 4 pressure ulcers.
10. Provide continuity of care between health care settings by sharing documentation with colleagues.
11. Regularly audit pressure redistributing equipment (minimum annual) and information/training will be provided to ensure its correct use and maintenance.
12. Participate in annual prevalence audit that will be used to improve future practice.

13. Provide information and education for patients and carer(s).

### 1.3 Referral to Tissue Viability Nurse/Wound Care Team

Referrals to a Community Tissue Viability Nurse or to the Hospital Wound Care Team can be made by members of the medical staff, a nurse in charge of the patient's care, staff from Professions Allied to Medicine or the patient or their carers.

The following patients must be referred:

- Patients who have a Category (Grade) 3 or 4 pressure ulcer
- Patients with a deteriorating pressure ulcer
- Patients with a difficult to manage pressure ulcer
- Where concordance issues affect care
- Where a complaint is anticipated or has occurred

Where further complex issues complicate care or progress is not being made referral to the Nurse Consultant is appropriate.

### 1.4 Liaison between Care Settings

Pressure ulcer prevention and management is complex, frequently crosses care and professional boundaries and benefits from a multidisciplinary and collaborative approach to care. Sharing information and documentation will ensure continuity between care settings. When possible communication should take place prior to transfer. Ideally transfer information should include:

1. Patient's level of risk
2. Any equipment used
3. Skin condition
4. Plan of care e.g. Moving and handling plan, members of MDT involved
5. Relevant social and cultural information including communication needs
6. Patient and carer information/education status

### 1.5 Education and Training

Education of healthcare professionals is a central theme in the strategy for pressure ulcer prevention. To this end education and training is provided to support this policy in the form a Pressure Ulcer Educational Resource Book which underpins the educational strategy for Bradford and Airedale. Locally

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education and training is provided by the Wound Care /Tissue Viability Team and through academic courses at the University of Bradford details of which can be obtained from the Nurse Consultant.

Direct patient and carer education and training by staff supported by available patient literature also has an important role to play in pressure ulcer prevention and management. This literature can be downloaded from [www.nice.org.uk/CG029](http://www.nice.org.uk/CG029) and given to all patients at risk.

EPUAP /NPUAP pressure ulcer prevention and treatment quick reference guides are available from [http://www.epuap.org/guidelines/Final\\_Quick\\_Prevention.pdf](http://www.epuap.org/guidelines/Final_Quick_Prevention.pdf) and [http://www.epuap.org/guidelines/Final\\_Quick\\_Treatment.pdf](http://www.epuap.org/guidelines/Final_Quick_Treatment.pdf).

An e-learning package, which is yet to be updated to reflect the new categories (grades) relating to pressure ulcers, is available at <http://www.puclas.ugent.be/puclas/e/>

### 1.6 Policy Review

This is a working document that reflects changes to the National and International guidance on pressure ulcer prevention and treatment. In the light of change to policy this document will be reviewed in 2012. If you have any comments about this policy or experience difficulty in its implementation please contact:

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## 2. Background Information

Pressure ulcers represent a major burden of sickness and reduced quality of life for patients and their carers (Franks et al., 2002). It is suggested that the majority of pressure ulcers are preventable (Hibbs, 1988). Demographic trends, with an increasingly aging population, will result in an enlarged at-risk client group. Data from the Bradford and Airedale wound audit (Vowden, 2009) demonstrates the size of the problem locally. 363 patients (21%) with a pressure ulcer were identified (M:136, F:224, NK:3 – Mean age 79.1 years) of which 120 were Grade III or IV. Pressure ulcer prevention is a multifaceted problem that requires a systematic multidisciplinary approach to care.

Pressure ulcers remain a Department of Health benchmarked standard within the Essence of Care program details of which can be found in “Essence of Care: Patient-focused benchmarks for clinical governance” - [www.modern.nhs.uk/home/key/docs/Essence%20Care.pdf](http://www.modern.nhs.uk/home/key/docs/Essence%20Care.pdf).

### 2.1 Pressure Ulceration: A Definition

A pressure ulcer is localized 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. (EPUAP/NPUAP 2009)

### 2.2 Aetiology of pressure ulcers

Pressure ulcers form as a result of extrinsic and/or intrinsic factors that impact on the viability of skin and underlying tissues. The impact of these forces will vary according to an individual's susceptibility. Pressure ulcers result from prolonged and/or repeated insults producing local ischaemia without adequate time for total tissue recovery (Bader, 1990; Thompson, 2005) They can develop very quickly, and can occur within an hour (National Institute for Clinical Excellence, 2005) although the damage may not become apparent until sometime after the tissue injury. There is a potential for all individuals to develop pressure ulcers, the relative risk is dependent upon the presence of one or more of the following risk factors:

#### 2.2.1 Extrinsic risk factors

The forces of pressure and shearing act upon the tissues disrupting them and damaging blood vessels, which eventually result in, reduced perfusion, ischaemia, the build-up of metabolic waste and the possible tissue death.

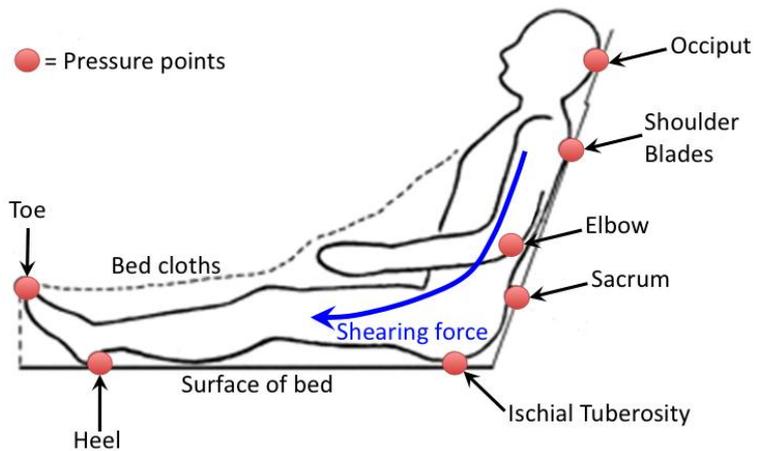
**Pressure** – This is the most important factor in pressure ulcer development. Tissue damage is caused by skin distortion, resulting in occlusion of the blood vessels that

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leads to tissue necrosis and breakdown. Damage often occurs from the inside/out and therefore the true extent of a pressure ulcer may not be obvious at first assessment. Most pressure ulcers occur where the skin and tissues are directly compressed between bone and another hard surface such as floor, bed, chair, theatre table or trolley. Pressure damage can also occur from equipment or medical devices such as incorrectly applied or positioned catheter or oxygen tubing, splints/bandages/plaster of Paris or when pressure between two body surfaces is unrelieved for a prolonged period, e.g. pressure between both knees. The most common sites for pressure damage in adults are sacrum; heels, femoral trochanter and buttocks, but damage may occur elsewhere e.g. spine, ears or elbows. Pressure ulceration in infants and children is more likely to occur to the occipital area or ears.

There is no scientific agreement about the time a given amount of pressure needs to be exerted before injury begins. Prolonged low pressure can be as harmful as short-term high pressure (Swain and Bader, 2004, Nixon, 2004).

**Shear** – Shear forces are initiated when the deeper tissues near the bone “slide” while the skin remains at its point of contact with the supporting surface (Waterlow, 2005). This most commonly occurs when any part of the supported body is on a gradient. As a result of shear forces blood vessels are stretched and angulated causing a reduction of blood supply and tissue damage. Subcutaneous fat lacks tensile strength and with its reduced vascularity is particularly susceptible to damage by shearing forces



(Vohra and McCollum, 1994). Mimura (2009) has demonstrated how bed positioning and body shape and size influence focal shear forces (see diagram above). In order to reduce shear reference should be made to the Moving and Handling Policy and the seating and positioning recommendations (see Appendix 6 and 7).

**Frictional forces**, e.g. those generated by pulling a patient across a bed sheet, can cause intra-epidermal blisters by the abrasive action of sliding across a surface. Friction and shear often occur in the same clinical situations. To reduce the potential for friction reference should be made to Patient Handling Policy.

**Moisture lesions** or incontinence associated dermatitis maceration or excoriation are not pressure ulcers **however** excessive moisture is considered to be a risk factor in pressure ulcer development (Nixon, 2004). Moisture can cause maceration and this makes the skin more susceptible to pressure, shear and infection (Dealey, 2005). Moisture can also lead to the tissues adhering to support surface. Some causes of moisture such as urine, faeces, wound exudate and sweat can damage

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the skin and reduce its protective and barrier functions and have been found to be additional risk factors for pressure ulcer development (Cakmak, 2009).

### 2.2.2 Intrinsic risk factors

**Age** - individuals at the extremes of age are at increased risk of skin damage and this increases their susceptibility to pressure ulcer formation (National Institute for Clinical Excellence, 2005).

**Immobility/inactivity** – consider individuals who are bedfast or chair fast to be at risk of pressure ulcer development. The patient's ability to reposition himself or herself affects risk. Mobility may be restricted by a patient's conscious level, medication such as sedatives, hypnotics and analgesics, medical disease, acute illness, severe chronic or terminal illness, weight, pain, and spinal or epidural anaesthesia.

**Skin/tissue condition** – This is adversely affected by age, dehydration, oedema and moisture. Other factors include malnutrition, medication such as systemic or topical steroids and hypoxia. Previous skin trauma such as surgical scars or previous pressure ulceration increases the risk of future pressure damage (National Institute for Clinical Excellence, 2005).

**Sensory functioning** – The loss of protective response is a major factor in pressure damage. The inability to feel discomfort or pain, e.g. after spinal anaesthesia, spinal injury, CVA, MS or neuropathy related to conditions such as Diabetes Mellitus, may decrease the usual response to discomfort of changing position.

**Perfusion and oxygenation** – Pressure damage is an ischaemic injury. This may be affected by conditions such as hypovolaemic shock, hypotension, hypoxia, Diabetes Mellitus and cardio and/or peripheral vascular disease.

### 2.2.3 Patient quality of life

The physical, psychological and social impact of living with a pressure ulcer can be severe. For the individual, a pressure ulcer can cause pain, systemic illness, an increased length of hospital stay, extended absence from work and normal activities, loss of earnings, low self esteem, amputation and altered body image (Franks et al., 2002, Fleurence, 2005, Spilsbury et al 2007, Gorecki et al 2009).

### 2.2.4 Patient Choice

Patients can only make a choice when provided with appropriate information. This should be provided in a way that is suitable for an individual's level of understanding and reflect their needs, language and culture. Verbal and written information should be provided to patients and carers by the health care professional (booklets available from NICE – [www.nice.org.uk/CG029](http://www.nice.org.uk/CG029) ).

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Patients should, when possible, be actively involved in the care process and the selection of the most suitable equipment for their needs. The rationale for using specific equipment should be explained. Patients have a right to decline treatment and have their opinion respected if they are competent to do so (refer to Mental Capacity Act (2005) and related Trust policy). Some patients may refuse to use the equipment, particularly if the use of that equipment affects their independence or impacts on other family members or cultural requirement and attempts should always be made to accommodate their wishes. However we would be negligent in our duty of care if we did not act to safeguard patients if they were unable to decide what was in their best interest. The patient's reason for refusal should be explored. Referral to the tissue viability /wound care team who can support alternative care options should be made and the outcome of discussions/actions documented. At times patients may request equipment over and above their defined clinical need as assessed by the health care team. There is no requirement on staff to provide additional equipment above the assessed risk.

### **2.2.5 The Cost to the Health Service**

Pressure ulcers are an ever-increasing burden on NHS finances. Bennett, Dealey & Posnett (2004) suggest that the treatment of pressure ulcer constitutes 4% of the NHS budget; this amounts to £1.4 - £2.1 billion per year. Posnet and Franks (2007) reached a similar conclusion estimating that the cost to the NHS of pressure ulceration was up to £2.64 billion per year or between £4300 and £6400 per patient who develops a pressure ulcer. When measured on a per case basis, the cost of treating pressure damage is almost always higher than prevention.

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## 3. Assessment

### 3.1 Identifying individuals vulnerable to, or at elevated risk of, pressure ulceration.

Assessment is the first step in the development of a patient-centred multidisciplinary management strategy and the key to individualised, cost effective care.

Responsibility for co-ordinating and documenting care lies with the lead health care professional unless a pressure ulcer is the reason for hospital admission in which case responsibility lies with the consultant under whom the patient is admitted. All staff members are accountable for their actions and inactions in delivering care to patients and should ensure that documentation accurately reflects the assessment, the care given and the rationale for decisions taken.

The assessment, which should be undertaken within two hours of admission or at initial assessment, should be carried out by an appropriately trained health care professional. The assessor should have a clear understanding of the extrinsic and intrinsic factors that may relate to each individual patient and the knowledge to understand and act upon the findings of the assessment. Using this information the assessor will generate an immediate care plan, which should be discussed with, and agreed by, the patient and/or their carer(s).

When identifying risk factors consideration must be given to the period leading up to assessment when the patient may have already experienced pressure e.g. as a result of being unable to move after a fall. Risk assessment should include both informal and formal assessment approaches, the results of both of which should be clearly documented.

Pressure ulcer risk assessment is an ongoing process. Formal re-assessment should be undertaken if:

1. There is a change in an individual's clinical condition.
2. There are changes in an individual's circumstances.
3. There is a change in carer or care setting.
4. The current risk status is high.

### 3.2 Risk Calculators

Risk assessment tools should only be used as an *aide memoiré*, and should not replace clinical judgement (National Institute for Clinical Excellence, 2003). They should be combined with a skin assessment, an assessment of activity and mobility and an assessment of nutritional status.

The potential uses of risk assessment scales are to:

1. Identify the risk status of individual patients
2. Structure patient assessments and act as an *aide-memoiré* of risk factors.
3. Facilitate clinical audit of patient management and outcomes.

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4. Provide evidence of assessment.
5. Assist with targeting resources appropriately.

Two risk assessment scales are used in Bradford and Airedale. The Waterlow risk assessment tool (Appendix 1) will be used in Bradford Teaching Hospitals Trust and Airedale General Hospital. The Maelor risk assessment tool (Appendix 2) will be used within Bradford and Airedale Teaching Primary Care Trust and Bradford and Airedale Community Health Services. Communication and documentation between the care settings, health care providers, patients and carers should make clear the degree of risk, which assessment tool has been used and the current and previous plan of care.

Anticipation of a change in clinical need (and change in risk) such as a patient having surgery will ensure preventative action is taken prior to any change in circumstances.

## 3.3 Skin assessment

All of the patients' skin should be inspected and assessed for actual or potential pressure damage and any change in the skin status should be fully recorded using The European Pressure Ulcer Advisory Panel classification system (Appendix 3).

Skin inspection and assessment should occur regularly. The frequency should be determined by the previous skin condition and any changes in the individual's condition or environment. Patients should be encouraged to report painful areas that could be attributed to pressure.

Patients, carers or health professionals can perform skin inspection. Individuals, who are able, should be taught and/or encouraged to inspect their own skin (National Institute for Clinical Excellence, 2003; EPUAP 2009).

Skin inspection should be based on an assessment of the most vulnerable areas of risk for each patient. These are typically bony prominences that include sacrum, heels, hips, ankles, elbows and occiput. Risk areas for children include the head and ears. The use of devices such as plaster casts, splints, compression hosiery and drainage or oxygen tubes can increase interface pressure causing pain and skin damage. In such cases regular inspection should be performed. Patients wearing anti-embolic hosiery require assessment at least daily particularly of the heel area.

The condition of the skin, including if the skin is intact, should be documented. The site and extent of discolouration, dryness, cracking, erythema (redness), maceration, localised oedema, fragility, blisters, localised heat, localised pain and induration (hardness) should be recorded, using diagrams or photographs, taken in line with the Trust's Illustrative Recording Policy, when appropriate.

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## **Blanching erythema**

The body's normal physiological response to pressure is a blanching erythema – a reddening of the skin that blanches when light finger pressure is applied. This indicates that the microcirculation is intact.

The early signs of tissue damage include heat, pain and redness. These signs should be documented.

## **Non-blanching hyperaemia**

This is a redness that remains after pressure release and indicates damage to the microcirculation that could result in tissue breakdown (Bliss, 1998; Nixon, 2007).

Persistent erythema or non-blanching hyperaemia indicates a Category (Grade) 1 pressure ulcer.

## **Darkly pigmented skin**

In people with darkly pigmented skin the initial signs of tissue damage such as non-blanching hyperaemia may be difficult to detect. It can be identified as a purplish/bluish localised area of skin discolouration. One method of identifying it is the heat detection method described by Lowthian (1994). This involves running one's middle finger slowly over the suspect area to feel the heat. Alternatively, palpating the skin will show if it is turgid or if a lump is present – this is indicative of possible subcutaneous trauma. Scanlon and Stubbs (2004) outline the holistic approach to pressure ulcer risk assessment in patients with darkly pigmented skin.

## **3.4 Nutrition assessment**

All patients with nutritional deficit are at increased risk of developing pressure ulcers and nutritional therapy plays an important role in pressure ulcer treatment. Patients at risk of pressure ulceration should have a nutritional assessment performed using the MUST tool (Appendix 4) as part of their initial assessment and a member of the dietetics team should assess "at risk" patients according to the nutritional policy.

EPUAP (2009) recommends that, as a minimum, assessment of nutritional status should include regular weighing of patients, skin assessment and documentation of food and fluid intake. Nutritional laboratory assessments may be required in some patients. If dietary intake is considered inadequate refer to the Dietician for further assessment and advice. Patients should also be referred to the Dietician if they have lost 10% or more of their initial body weight unintentionally within the last month or they have a BMI of less than 17. Obesity does not equate with either appropriate nutritional balance or hydration. Excess body weight may mask nutritional deficiencies. The Dietician will assess the patient's nutritional requirement and aim to provide this by the most appropriate method. This may involve the use of meal shakes, dietary supplements or enteral tube or intravenous feeds. The patient's ability to meet their nutritional needs should be monitored and further action taken if intake remains sub-optimal (NICE Clinical Guidance CG32 - [www.nice.org.uk/guidance/cg32](http://www.nice.org.uk/guidance/cg32)).

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## 4. Pressure Ulcer Prevention

The involvement of the patient or carer in preventing pressure ulcers is vital; explanation should be given about pressure ulcer risk factors, their implications and strategies for their prevention. The patient and/or their carer's experience in successfully preventing pressure ulcers should be taken into account when planning care. Patient information should be verbal, supported by written information as appropriate. The patient/carer should be involved in long term care planning which may involve other members of the community healthcare team.

There are three principles of action to prevent pressure ulcers:

1. Redistribution of pressure
2. Preventing damage to the skin
3. Improving tissue resistance

### 4.1 Redistributing pressure

Pressure redistribution is the main approach used in the prevention of pressure ulcers (Dealey, 2005). The overall aim is to reduce the magnitude and duration of any pressure exposure (McInnes et al 2008). Strategies include:

1. Patient positioning and repositioning
2. The use of specialist equipment

#### 4.1.1 Positioning and Repositioning

Periodically repositioning the patient is one way of relieving pressure and transferring it to another area in order to prevent tissue damage (Maylor, 2001). How often this is carried out will depend on the individual patient's skin redness, mobility, risk factors, and the support system in use i.e. mattress or chair. Individuals who are able to do so safely should be taught and encouraged to actively mobilise and reposition themselves whether in bed or chair. High pressures over bony prominences for a short time and low pressures over bony prominences for a long period of time are equally damaging. The frequency of timing and positional changes will be determined by the individual's tissue tolerance, their vulnerable areas, level of activity and mobility, general medical condition and overall treatment objectives and the support surface. The frequency of repositioning must be included in the patient's written care plan or repositioning chart.

The effects of pressure and shear can be minimized by:

1. Correct positioning of the patient e.g. use of a profiling bed
2. Protection of high risk areas e.g. elevation of heels
3. Using appropriate moving and handling techniques and equipment
4. Careful insertion and removal, when appropriate, of handling equipment e.g. slings after moving the patient.

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The use of the 30-degree tilt to position patients in such a way to minimize the impact on bony prominences can also reduce the risk of pressure damage. (See Appendix 6)

The risk of tissue damage due to shear can be reduced by providing effective means of assisting movement in accordance with the individual's positioning and care plan. Refer to Moving and Handling Policy.

Ensure bony prominences such as knees and ankles, which may not be in contact with the support surface but may be in direct contact with one another, are kept apart in such a way as to reduce the risk of pressure damage.

## 4.1.2 Equipment

Pressure redistributing support surfaces work by reducing the magnitude and/or duration of pressure between the individual and the support surface. They are an important adjunct to effective nursing care rather than a replacement for it (University of York, 1995, Defloor et al 2005, Whitney et al 2006). The provision of pressure redistributing devices needs a 24-hour approach and should include consideration of all surfaces used by the patient e.g. chairs, wheel chair, operating table and trolleys as well as the bed. When patients are moved between departments or care settings staff should ensure that appropriate equipment is allocated commensurate with the patient's perceived risk and that receiving staff are aware of the patient's risk and needs. Use of equipment should include an audit of effectiveness and relate to the central equipment audit and maintenance program.

A registered Health Care Professional who has undergone locally approved training should make decisions about choice of equipment. Decisions should be based on an overall holistic assessment of the individual and not solely on scores from risk assessment tools. When considering equipment provision the most cost effective system to provide the level of care needed should be allocated. The assessment on which choice is based should include all of the following:

1. Risk assessment and level of risk
2. Skin assessment and the presence and severity of any pressure ulcers
3. Location, cause and grade of any pressure ulcer
4. Comfort
5. Acceptability of the proposed equipment to the patient or carer
6. Critical care needs
7. General health status
8. Patient weight
9. Lifestyle and potential affect that the equipment will have on their abilities and environment
10. Treatment objectives
11. Any contraindications advised by the equipment manufacturer
12. Suitability for area of usage
13. Safety of patient

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The initial choice and subsequent changes of equipment, including the rationale for decisions, should be documented.

Patients with identified Category (Grade) 1 or 2 pressure damage are at significant risk of developing more severe damage and should, as a minimum provision, be placed on a high specification foam mattress/cushion with pressure redistributing properties (National Institute for Clinical Excellence, 2005). These mattresses are in use on all beds within Bradford Teaching Hospitals Foundation Trust and Airedale General Hospital.

Patients with a deteriorating Category (Grade) 1 or 2 pressure damage and all Category (Grade) 3 or 4 pressure ulcers should, as a minimum provision, be placed on a dynamic alternating pressure mattress/cushion that provides periodic pressure relief or a low air loss system that provides continuous pressure reduction (National Institute for Clinical Excellence, 2005).

Water-filled gloves, synthetic sheepskins or doughnut-type devices should not be used as pressure relieving or redistributing aids (National Institute for Clinical Excellence, 2001).

### Seating

Trained health care professionals who have developed specific knowledge and skills in this area or who have undergone locally approved training should carry out seating assessments for wheelchairs, aids and equipment. Details of at risk areas for seated subjects are given in Appendix 7.

Patients “at risk” from pressure damage, who cannot relieve their own pressure independently, should restrict chair sitting to a maximum of 2 hours at any one time (National Institute for Clinical Excellence, 2003). Patients with a pressure ulcer on the sacral or ischial tuberosity region should be sat in a chair for no longer than 1 hour three times a day (EPUAP 2009).

Positioning of individuals who spend substantial periods of time in a chair or wheelchair must take into account; distribution of weight, postural alignment and balance, and support of the lower limb/feet. Individuals and their family/carers should be informed of factors relating to seating which may increase their vulnerability to pressure ulceration and instructed, where appropriate on the correct use and maintenance of their seat and/or cushion.

### **The benefits of a pressure-redistributing mattress should not be undermined by prolonged chair sitting.**

When planning to sit the patient out of bed consider the following points:

1. The severity and location of any ulcer
2. The patients' ability to sit comfortably in an armchair and reposition themselves
3. Ergonomics of the chair (e.g. height, depth, width, armrest)
4. The chairs suitability in relation to the patients build

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5. Ease of transfer from the bed to chair and the use of appropriate moving equipment
6. Posture, mobility, comfort and support
7. Moisture and temperature at the seat buttock interface
8. Continence management
9. Functions required when sitting e.g. eating/washing
10. Patient choice, their cognitive ability and any psychosocial issues
11. For wheelchairs, their stability, ease of use and control, and their suitability for the home or hospital environment

The correct seating position for any individual is that which does not impede their mobility or their ability to carry out all activities and functions they may wish to perform (Seating and Pressure Ulcers: Clinical Practice Guidelines, TVS 2009).

- Do not seat an individual in such a way as to limit their activity
- Do not select cushions or seats solely on the basis of managing pressure ulcer risk
- Consider the physical characteristics of the seat ensuring that they are appropriate for the individual.

When patients are able they should be given guidance on self-repositioning. Three main manoeuvres can be undertaken:

- Roll, when an individual raises one buttock at a time by leaning or rolling sideways using an armrest for support.
- Forward lean where the individual leans forward taking pressure off the ischial area
- Lift-off where an individual pushes down onto the arm rests lifting their buttocks from the seat.

### Safe use of pressure redistributing equipment

There are a number of safety issues that should be considered when selecting this equipment; these may be particularly pertinent in the patient's own home.

1. Ensure that the mattress or cushion does not elevate the patient to an unsafe height in relation to patient mobility, bed rails or chair arms.
2. Ensure that the equipment is suitable for the patient's weight, height and other physical characteristics.
3. Consider the stability and balance of the individual when using the support surface.
4. Consider the effectiveness of care in the event of power or equipment failure and have a backup plan.
5. Ensure that all equipment used is clean, undamaged and fit for purpose.
6. Ensure that a frequent inspection regime is established for all mattresses in line with alert MHRA MDA/2010/002.

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## 4.2. Preventing damage to the skin

In order to keep the skin in good condition it needs to be protected from maceration, irritation, the removal of natural oils and accidental damage. Treatment of the skin therefore depends on the state in which it is found, rather than any routine procedure. Boore et al (1987) identify the following principles in caring for the skin:

1. Keep it clean
2. Do not let it remain wet
3. Do not let it dry out
4. Prevent accidental damage

To achieve the above:

1. A mild cleansing agent (aqueous cream, Hydromol bath additive, Infacare™) should be used to minimise irritation and dryness of the skin. Avoid rubbing the skin, and pat the area dry.
2. Emollients (e.g. Oilatum™ or Hydromol cream) can be applied to help prevent skin dehydration.
3. Avoid plastic drawsheets and other non-absorbent surfaces that may increase moisture against the skin.
4. Avoid Talcum powder as this can 'cake' and cause irritation and friction.
5. Reduce the effect of moisture on the skin. Barrier products such as Cavilon™, which is compatible with many continence aids, may be applied. Zinc oxide cream (Sudocrem™) and zinc and castor oil is not compatible with continence aids and should be avoided.

### 4.2.1 Incontinence

Effective promotion of continence or management of incontinence is needed to maintain skin integrity. Skin should be kept free of contamination by urine and faeces by gentle cleansing. For patients with moisture lesions /incontinence dermatitis, seek advice from the Continence Service and/or the Tissue Viability Nurse. Faecal drainage devices such as the Flexi-Seal® tube may aid in the management of faecal incontinence when dealing with sacral pressure ulceration or "at risk" skin (Beldon, 2009).

## 4.3 Improving the patients' resistance to pressure

This relates to the patient's intrinsic risk factors and involves an interdisciplinary approach. The lead health care professional will refer to and co-ordinate the involvement of other healthcare professionals within the multi-professional team developing an individualised plan of care addressing issues such as nutrition, cardiovascular or peripheral vascular disease and diabetes management.

Lindholm et al (2008) identified diabetes mellitus and pulmonary disease as significant risk factors for pressure ulcer development in hip fracture patients.

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## 4.4 Risk management in special situations

### 4.4.1 Heel pressure ulceration

Heels are one of the main vulnerable areas for pressure ulceration and heel skin should be inspected frequently particularly in patients with diabetes, known vascular disease, those using DVT or compression hosiery or those with “heavy” oedematous legs. Heels should be free of the bed surface and heel protection devices should elevate the heels completely (offload them), redistributing the weight equally along the leg without putting focal pressure on the Achilles tendon or calf. The knees should be slightly flexed to avoid popliteal vein compression. In the absence of specialised heel pressure relieving equipment the use of a pillow under the calves with the heels “floating” can be a useful method of protecting the heels (EPUAP 2009).

Heel protection should continue when the patient is sitting. Slide sheets should be placed under the heels when moving patients up/down or in/out of bed.

### 4.4.2 Management of bariatric patients

The length of hospital stay of morbidly obese patients is often 30% longer than normal weight patients with equivalent medical conditions. Greater patient autonomy is of benefit to both the patient and staff and will be aided by the correct selection of support equipment. The obese patient is at risk from their build and may sustain pressure damage in unusual sites, a risk that is increased by the poor blood supply to fatty tissues, and is at risk of positional complications such as obstructed venous return, hypoxia and sleep apnoea. The advice is from EPUAP (2009) is summarised below.

1. Choose the bed for the individual from the time of admission.
  - a. Use beds that support the weight of the individual.
  - b. Check for “bottoming out” of the mattress
  - c. Ensure that the bed surface is sufficiently wide to allow turning of the individual. Confirm that the width of the bariatric individual does not reach the side rails of the bed when the individual is turned side-to-side
  - d. Consider the use of a turn assist bed or mattress to aid turning
  - e. When selecting and using moving and handling equipment contact the Ergonomics advisor for support and advice
2. Consider using features that provide airflow over the surface of the skin to facilitate fluid evaporation if the skin is excessively moist.
3. Use a wheelchair and chair wide enough to accommodate the individual’s girth
4. Provide bariatric walkers, overhead trapezes on beds, and other devices to support continued mobility and independence.
5. Get adequate assistance to fully inspect all skin folds

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6. Pressure ulcers may develop in unique locations, such as beneath folds of skin and in locations where tubes and other devices have been compressed between skin folds.
  - a. Pressure ulcers develop over bony prominences, but may also result from tissue pressure across the buttocks and other areas of high adipose tissue concentration.
  - b. Use pillows or other positioning devices to offload large skin folds and prevent skin-on-skin pressure.
7. Take care when positioning and removing slings and handling equipment to prevent skin damage and pressure

Specific recommendations for the management of bariatric patients are given in Appendix 8.

### 4.4.3 Managing patients in the operating theatre

NICE identify patients who may be at an elevated risk are those undergoing vascular surgery, orthopaedic surgery, surgery classed as major and those with one or more risk factors for pressure ulcers development. Perform risk assessment of patients undergoing surgery by identifying other factors that may occur and will increase risk of pressure ulcer development.

Consider

- Length of operation
- Hypotensive episodes
- Reduced core temperature
- Possible reduced mobility post-operatively (48 hours post op dependant on surgery and post-operative instructions)

EPUAP (2009) advice includes:

1. Use a pressure redistributing support surface on the operating table for all individuals identified to be at risk of pressure ulcer development, positioning and repositioning the patient when possible in line with the Moving and Handling Policy.
2. Heels should be completely offloaded in such a way that weight is distributed along the leg without focal pressure on the Achilles tendon or calf (the knees should be slightly flexed to avoid popliteal vein compression).
3. Pressure redistribution should occur prior to and after surgery (including in the recovery area). Patients should adopt a different posture pre and post-operative than that during the operation. Risk status and skin integrity should be re-assessed at hand-over of care between theatre and ward staff.

### 4.4.4 Palliative care and pressure ulcer prevention and treatment

Complete a comprehensive assessment of the individual assessing the risk for new pressure ulcer development using a validated risk assessment tool (Waterlow/Maelor) and a comprehensive skin assessment.

Implement and document a flexible repositioning schedule based on the patients' preference and tolerance (EPUAP 2009).

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- Consider the use of analgesics prior to repositioning
- Comfort is of primary importance and may supersede prevention and wound care interventions
  - Consider the patients choices in repositioning including whether they have a 'position of comfort'
- Consider the support surface used with regard to patient choice and comfort
- Individualise a repositioning regime within the patient's comfort (ideally every 4 hours on a pressure redistributing mattress or every 2 hours on a regular mattress), documenting factors influencing decisions.

Set treatment goals consistent with the values and wishes of the patient.

- Implement actions to enhance the patient's quality of life, considering that, if present, a pressure ulcer may not heal or treatment may not lead to healing
- Manage any pressure ulcer with appropriate dressing(s), considering pain control, exudates management and odour control. Select dressings that have extended wear time to reduce pain associated with frequent dressing changes. Refer to Wound Care Policy for detailed dressing product information.
  - Refer to section on Pain management when assessing pressure ulcer pain
  - Consider local topical treatment for ulcer pain – EMLA, Lignocaine Gel, Diamorphine hydrogel as part of a multi-professional approach.

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## 5 Assessment and Treatment of Pressure Ulcers

Reference should be made to the Wound Care policy for detailed information on the assessment and treatment of pressure ulceration. The principles of intervention are:

1. Removing the cause i.e. pressure, shear and friction
2. Assessing the extent of the tissue damage, the state of the wound bed, the level of bacterial load, the condition of the surrounding skin and the perfusion of the wound area
3. Deciding on treatment objectives for the wound
4. Where appropriate create a healing environment at the wound surface by:
  - Debriding dead tissue/slough
    - Reducing undermining
  - Identifying and treating infection
    - Reducing contamination by faeces or urine
  - Supporting healthy granulation tissue
5. Improve the patient's general condition including their nutritional status
6. Managing pain and psychological stress

### 5.1 Dressings and Pressure Ulceration

Wound dressings are a central component of pressure ulcer care. The selection of the dressing should be based on the tissue in the ulcer bed, the condition of the skin around the ulcer bed, and the goals of the person with the ulcer. Generally maintaining a moist ulcer bed is the ideal when the ulcer bed is clean and granulating to promote healing or closure. Several moisture-retentive dressings are available. However, the type of dressing may change over time as the ulcer heals or deteriorates. Refer to the Wound Care Formulary and Educational Resource Book for a more complete description of all dressing types as well as a discussion of indications and contraindications for their use.

### 5.2 Pain and Pressure Ulceration

All wounds, whatever their aetiology may be painful and pressure ulcers are no exception to this.

1. Assess all individuals for pain related to a pressure ulcer or its treatment.
2. An assessment of pain should include an assessment of body language and nonverbal cues.
3. Prevent or minimise pain by:
  - Use a lift or transfer sheet to minimize friction and/or shear when repositioning an individual, keeping bed linens smooth and unwrinkled.
  - Position the individual off of the pressure ulcer whenever possible
  - Avoid postures that increase pressure, such as Fowler's position, greater than 30 degree or 90 degree side-lying position, or the semi-recumbent position.
  - Minimize pressure ulcer pain by handling all wounds gently and protecting the peri-wound skin.

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4. Manage pain by:
  - Organising care delivery to ensure that it is coordinated with pain medication administration.
  - Reduce pressure ulcer pain by keeping the wound bed covered and moist (unless the plan is to maintain stable dry eschar), and using a non-adherent dressing.
  - Administer pain medication regularly, in the appropriate dose, to control chronic pain following the WHO Dosing Ladder.
    - Consider topical medication
  - Encourage repositioning as a means to reduce pain, if consistent with the individual's wishes.
  - Refer the individual with chronic pain related to pressure ulceration to the appropriate pain and/or wound care teams.

### 5.3 Pressure ulcer grading and healing

Reverse grading should not be used when describing a pressure ulcer. A pressure ulcer retains its worst category (grade) as healing. A Category (Grade) 4 ulcer should therefore be referred to as a resolving Category (Grade) 4 ulcer as it is healing and a healed Category (Grade) 4 ulcer when healed.

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## 6. References

- Bader, D. L. (1990) The recovery characteristics of soft tissues following repeated loading. *J Rehabil Res Dev* 27(2): 141-50
- Beldon, P. (2008) Faecal incontinence and its impact on wound care. *Continence* 1:22-27.
- Bennett, G., Dealey, C. and Posnett, J. (2004) The cost of pressure ulcers in the UK. *Age Ageing* 33(3): 230-5
- Bliss, M. R. (1998) Alternating-pressure mattress replacements. *J Wound Care* 7(6): 302
- Boore, J., Champion, R. and Ferguson, M. (Eds.) (1987) *Nursing the Physically Ill Adult*, Churchill Livingstone, Edinburgh.
- Bridel, J. (1993) Assessing the risk of pressure sores. *Nurs Stand* 7(25): 32-5
- Cakmak SK, Gul U, Ozer S, Yigit Z, Gonu M.(2009) Risk factors for pressure ulcers. *Advances in Skin & Wound Care*. 22(9):412-5.
- Dealey, C. (2005) *The Care of Wounds: a guide for nurses*, Blackwell Scientific, London.
- Department of Health (1993) *Pressure Sores: a key quality indicator*. The Stationery Office, London
- Department of Health (1999) *No Secretes: guidance on developing and implementing multiagency policies and procedures to protect vulnerable adults for abuse*. London, Department of Health.
- Defloor T, De Bacquer D, Grypdonck MH.(2005) The effect of various combinations of turning and pressure reducing devices on the incidence of pressure ulcers. *International Journal of Nursing Studies*. 42(1):37-46.
- Edwards, M. (1995) The levels of reliability and validity of the Waterlow pressure sore risk calculator. *J Wound Care* 4(8): 373-8
- European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. (2009) *Prevention of pressure ulcers: quick reference guide*. Washington DC: National Pressure Ulcer Advisory Panel <http://www.epuap.org>.
- European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. (2009) *Treatment of pressure ulcers: quick reference guide*. Washington DC: National Pressure Ulcer Advisory Panel <http://www.epuap.org>.
- Fleurence, R. L. (2005) Measuring quality of life in patients with pressure ulcers to include in economic evaluations. *J Wound Care* 14(3): 129-31
- Franks, P. J., Winterberg, H. and Moffatt, C. J. (2002) Health-related quality of life and pressure ulceration assessment in patients treated in the community. *Wound Repair Regen* 10(3): 133-40
- Gorecki C, Brown JM, Nelson EA, Briggs M, Schoonhoven L, Dealey C, Defloor T, Nixon J.(2009) Impact of pressure ulcers on quality of life in older patients: a systematic review. *Journal of the American Geriatrics Society* 57(7):1175-83.
- Hibbs, P. (1988) The economics of pressure ulcer prevention. *Decubitus* 1(3): 32-8

## Pressure Ulcer Educational Resource Book

- Krouskop, T. A. (1983) A synthesis of the factors that contribute to pressure sore formation. *Med Hypotheses* 11(2): 255-67
- Lindholm C, Sterner E, Romanelli M, Pina E, Torra y Bou J, Hietanen H, Iivanainen, A. Gunningberg, L. Hommel, A. Klang, B. Dealey, C.. (2008) Hip fracture and pressure ulcers - the Pan-European Pressure Ulcer Study - intrinsic and extrinsic risk factors. *International wound journal*. 5(2):315-28.
- Lowthian, P. (1994) Pressure sores: a search for definition. *Nurs Stand* 9(11): 30-2
- Maylor, ME (2001) Pressure reducing equipment 4: turning patients and reducing risk. *Nursing and Residential Care* 3(12): 572-9.
- McInnes E, Bell-Syer SE, Dumville JC, Legood R, Cullum NA. (2008) Support surfaces for pressure ulcer prevention. *Cochrane database of systematic reviews* (Online).4:CD001735.
- Mimura M, Ohura T, Takahashi M, Kajiwara R, Ohura N, Jr.(2009) Mechanism leading to the development of pressure ulcers based on shear force and pressures during a bed operation: influence of body types, body positions, and knee positions. *Wound Repair Regen*. 17(6):789-96.
- National Institute for Clinical Excellence (2001) *NICE guideline on pressure ulcer risk management and prevention* National Institute for Clinical Excellence, London <http://www.nice.org.uk/pdf/clinicalguidelinepressuresoreguidancenice.pdf>.
- National Institute for Clinical Excellence (2003) *Pressure Ulcers: prevention and pressure-relieving devices* National Institute of Clinical Excellence, London <http://www.nice.org.uk/pdf/clinicalguidelinepressuresoreguidancenice.pdf>.
- National Institute for Clinical Excellence (2005) *Clinical Guidance 29: Pressure Ulcer Management* .NICE: London
- Nixon, J. (2004) Pressure ulcers. In: *Chronic Wound Care: a problem-based learning approach* (Eds, Morion, M. J., Ovington, L. G. and Wilkie, K.) Mosby, Edinburgh, pp. 227-245.
- 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. *International Journal of Nursing Studies*. 44(5):655-63.
- Posnett, J. and Franks, PJ. (2007) The cost of skin breakdown and ulceration in the UK. *Skin Breakdown: The Silent Epidemic*. The Smith and Nephew Foundation Hull, UK :6-12.
- Scanlon E, Stubbs N.(2004) Pressure ulcer risk assessment in patients with darkly pigmented skin. *Professional Nurse* 19(6):339-41.
- Spilsbury K, Nelson A, Cullum N, Iglesias C, Nixon J, Mason S.(2007) Pressure ulcers and their treatment and effects on quality of life: hospital inpatient perspectives. *Journal of Advanced Nursing*. 57(5):494-504.
- Swain, I. and Bader, D. (2004) The measurement of interface pressure and its role in soft tissue breakdown In: *Pressure Ulcers: recent advances in tissue viability*(Ed, Clark, M.) Quay Books Division, Salisbury.
- Thompson, D. (2005) A critical review of the literature on pressure ulcer aetiology. *Journal of Wound Care*. 14(2):87-90.

## Pressure Ulcer Educational Resource Book

University of York (1995) The Prevention and Treatment of Pressure Sores.  
*Effective Health Care Bulletin* 2(1)

Vohra, R. K. and McCollum, C. N. (1994) Pressure sores. *BMJ* 309(6958): 853-7

Vowden, KR. and Vowden, P. (2009) The prevalence, management, equipment provision and outcome for patients with pressure ulceration identified in a wound care survey within one English health care district. *Journal of Tissue Viability* 18(1):20-6

Waterlow, J. (2005) *Pressure Ulcer Prevention Manual*, Wound Care Society, London.

Whitney J, Phillips L, Aslam R, Barbul A, Gottrup F, Gould L, Robson MC, Rodeheaver G, Thomas D, Stotts N. (2006) Guidelines for the treatment of pressure ulcers. *Wound Repair Regen.* 14(6):663-79.

# Pressure Ulcer Educational Resource Book

## Appendix 1: Waterlow Risk Assessment Chart

Name: \_\_\_\_\_

Bradford Teaching Hospitals   
An NHS Foundation Trust

Hospital No: \_\_\_\_\_

DOB: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

### Waterlow Risk Assessment Score

Circle appropriate score for each factor then total	Date of assessment									
<b>Sex:</b>	Male	1	1	1	1	1	1	1		
	Female	2	2	2	2	2	2	2		
<b>Age:</b>	14-49	1	1	1	1	1	1	1		
	50-64	2	2	2	2	2	2	2		
	65-74	3	3	3	3	3	3	3		
	75-80	4	4	4	4	4	4	4		
	81+	5	5	5	5	5	5	5		
<b>Build/weight for height</b>	Average (BMI 20-24.9)	0	0	0	0	0	0	0		
	Above average (BMI 25-29.9)	1	1	1	1	1	1	1		
	Obese (BMI >30)	2	2	2	2	2	2	2		
	Below average (BMI <20)	3	3	3	3	3	3	3		
<b>Continence</b>	Complete/catheterised	0	0	0	0	0	0	0		
	Urine incontinence	1	1	1	1	1	1	1		
	Faecal incontinence	2	2	2	2	2	2	2		
	Double incontinence	3	3	3	3	3	3	3		
<b>Skin type and visual risk areas</b>	<i>Select all/any that apply</i>									
	Healthy	0	0	0	0	0	0	0		
	Tissue paper	1	1	1	1	1	1	1		
	Dry	2	2	2	2	2	2	2		
	Oedematous	3	3	3	3	3	3	3		
	Clammy, pyrexia	4	4	4	4	4	4	4		
	Discoloured (Grade 1)	5	5	5	5	5	5	5		
	Broken/spots (Grade 2-4)	6	6	6	6	6	6	6		
<b>Mobility</b>	Full	0	0	0	0	0	0	0		
	Restless/fidgety	1	1	1	1	1	1	1		
	Apathetic	2	2	2	2	2	2	2		
	Restricted	3	3	3	3	3	3	3		
	Bedbound (e.g. traction)	4	4	4	4	4	4	4		
	Chair bound (e.g. wheelchair)	5	5	5	5	5	5	5		
<b>Malnutrition</b>	<i>If malnutrition score &gt;2 refer for dietetic assessment/intervention</i>									
<b>Weight loss:</b>	No recent weight loss	0	0	0	0	0	0	0		
	Loss 0.5-5Kg	1	1	1	1	1	1	1		
	Loss 5-10Kg	2	2	2	2	2	2	2		
	Loss 10-15Kg	3	3	3	3	3	3	3		
	Loss >15Kg	4	4	4	4	4	4	4		
	Unsure of weight loss	2	2	2	2	2	2	2		
<b>Eating poorly or lack of appetite:</b>	No	0	0	0	0	0	0	0		
	Yes	1	1	1	1	1	1	1		
<b>Special risks</b>	<i>Select all/any that apply</i>									
<b>Tissue malnutrition</b>	Terminal cachexia	8	8	8	8	8	8	8		
	Multi-organ failure	8	8	8	8	8	8	8		
	Single organ failure	5	5	5	5	5	5	5		
	Peripheral vascular disease	5	5	5	5	5	5	5		
	Anaemia (Hb <8)	2	2	2	2	2	2	2		
	Smoking	1	1	1	1	1	1	1		
<b>Neurological deficit</b>	<i>Score 5 if any apply</i>									
	Diabetes, Multiple Sclerosis, Stroke Motor/sensory loss or paraplegia	5	5	5	5	5	5	5		
<b>Major surgery or trauma</b>	<i>Select all/any that apply</i>									
	Below waist orthopaedic or spinal	5	5	5	5	5	5	5		
	On table > 2 hours *	5	5	5	5	5	5	5		
	On table > 6 hours *	8	8	8	8	8	8	8		
<i>* discount after 48 hours providing the patient is recovering normally</i>										
<b>Medication</b>	<i>Cytotoxics, long term or high dose steroids, Anti-inflammatory</i>									
	At risk medication	2	3	4	2	3	4	2	3	4
	<b>TOTAL SCORE</b>									
	<b>SIGNATURE</b>									
<b>Waterlow score is an indicator of risk but does not override clinical judgement Provide a support surface matched to an individual's needs. The following guidance may be helpful</b>										
<b>At risk</b>	10+	Hospital foam mattress and chair with integral specialist foam.								
<b>At high risk</b>	15+	Consider hospital foam mattress, profile bed or Auto-logic mattress replacement. Use chair with integrated specialist foam.								
<b>Very high risk</b>	20+	Consider the use of an Auto-logic dynamic mattress replacement system and/or consider a profiling bed plus an Aura-logic alternating cell seat cushion.								
<b>Specialised areas</b>		Contact Wound Care Team	<b>Bariatric patients</b>	Contact Ergonomics Advisor						

# Pressure Ulcer Educational Resource Book

## A1.1: Guidelines for Completion of Waterlow Pressure Ulcer Risk Assessment

### ***Waterlow risk assessment should be performed:***

- *At initial assessment within 2 hours of admission*

### ***and:***

- *At least weekly*
- *If there is a change in an individual's condition or circumstances*
- *If there is a change in carer or care setting*
- *If the risk status remains high*

### **Assigning a numerical value to each of the following categories:**

**Sex**

**Age**

**BMI**

- Make an estimate of Weight/height when patients' condition prevents accurate measurement

**Continence**

### **Skin type- Score all that apply**

- Note any oedematous (swelling) clammy (moisture) or pyrexia (high temperature)
- Record Category (Grade) 1 pressure ulcer
- Broken spot to include any pressure ulceration - Category (Grade) 2 or above

### **Mobility- Score most appropriate**

- Restlessness increases risk of damage from shear or friction
- Apathetic records lack of interest or motivation – patient less likely to mobilise

### **Malnutrition-Weight loss**

- Record unintentional weight loss
- Note any lack of appetite
- Patients receiving naso-gastric tube feed or TPN should be coded as “No” – score 0

### ***Special Risks***

#### **Tissue malnutrition- Score all that apply**

- Terminal cachexia- weakness and wasting of the body due to an end of life illness

#### **Neurological deficit-**

- **Score 5 if the patient has any of the conditions listed**

#### **Major surgery or trauma- Score all that apply**

- Relates to the first 48 hours following surgery or any procedure (eg X-ray) where the patient is immobile.

#### **Medication- Maximum score is 4**

- *For example*
  - Patients taking cytotoxic therapy and steroids - score 4
  - Patients on long term / high dose steroids - score 4
  - Anti-inflammatory medication is a lower risk score 2
- Patients who are unstable and on medication listed are at greater risk the range is to provide some clinical judgement.

**Risk factors should be addressed and where possible reduced in the plan of care**

**Reassessment, care and equipment review should be planned, regular and documented**

# Pressure Ulcer Educational Resource Book

## A1.2: Pressure Ulcer Prevention and Management Core Care Plan

Bradford Teaching Hospitals																	
NHS Foundation Trust																	
<b>Core Care Plan. Week no:</b>																	
NAME _____ D.O.B. _____ UNIT No _____ Ward _____	<b>Pressure Ulcer Prevention and Management.</b>																
<b>Problem</b> The patient is at high risk of developing pressure damage and or already has a pressure ulcer.	<b>Aim</b> To prevent pressure damage / further pressure damage and aid healing.																
<b>Interventions</b>																	
<b>Patient Involvement</b>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Plan discussed with patient/family/friend</td> <td style="width: 30%;">YES / NO/ NA</td> </tr> <tr> <td>Information leaflet given to patient / relative</td> <td>YES / NO</td> </tr> <tr> <td>Pressure relieving manoeuvres / equipment discussed with patient</td> <td>YES / NO</td> </tr> <tr> <td>Patient agrees to planned care and interventions</td> <td>YES / NO</td> </tr> <tr> <td colspan="2">- If no please comment in variance section</td> </tr> <tr> <td>Patient will require assistance with repositioning</td> <td>YES / NO</td> </tr> <tr> <td>Adjustment made to plan according to patients wishes</td> <td>YES / NO</td> </tr> <tr> <td colspan="2">Signature..... Date.....</td> </tr> </table>	Plan discussed with patient/family/friend	YES / NO/ NA	Information leaflet given to patient / relative	YES / NO	Pressure relieving manoeuvres / equipment discussed with patient	YES / NO	Patient agrees to planned care and interventions	YES / NO	- If no please comment in variance section		Patient will require assistance with repositioning	YES / NO	Adjustment made to plan according to patients wishes	YES / NO	Signature..... Date.....	
Plan discussed with patient/family/friend	YES / NO/ NA																
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- If no please comment in variance section																	
Patient will require assistance with repositioning	YES / NO																
Adjustment made to plan according to patients wishes	YES / NO																
Signature..... Date.....																	
<b>Patient &amp; Skin Assessment</b>	Assess the patients skin for any pressure damage and use the <b>Pressure Ulcer Classification</b> (EPUAP 2009) every ..... hours/day (please delete) Date ..... Signature..... ..... hours/day (please delete) Date ..... Signature..... ..... hours/day (please delete) Date..... Signature.....																
<b>Pressure Ulcer Classification /Skin assessment for at Risk Areas – record skin assessment and/or ulcer category (grade) at least daily. (see over for Classification)</b>																	
Date e.g.	2.4.10																
Time	11.00																
Sacrum	P G2																
Right Hip	R																
Left Hip	0																
Right Buttock	0																
Left Buttock	0																
Right Heel	0																
Left Heel	0																
Other: State Nose	LC																
Waterlow Score																	
Signature																	
<b>Skin Assessment Codes</b>	O =normal skin/ no damage      P = painful area.      S = swelling R = redness – blanching      LC = localised skin temperature change: hot or cold																

# Pressure Ulcer Educational Resource Book

<b>Pressure Ulcer Classification</b> (EPUAP 2009)	<p><b>Category (Grade 1/G1): Non-blanching erythema</b> , with non-blanchable redness of a localised area usually over a bony prominence. Discolouration of the skin, warmth, oedema, induration or hardness may also be indicators, particularly on individuals with darker skin.</p> <p><b>Category (Grade 2/G2): Partial thickness skin loss</b>, involving the dermis presenting as a shallow open ulcer with a red pink wound bed without slough.</p> <p><b>Category (Grade 3/G3): Full thickness skin loss</b> subcutaneous fat may be visible but bone, tendon or muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss.</p> <p><b>Category (Grade 4/G4): Full thickness tissue loss</b>, with exposed bone, tendon or muscle. Slough or eschar may be present. Often includes undermining or tunnelling.</p> <p><b>Ungradeable (UG): full thickness skin or tissue loss - depth unknown. Refer to Wound Care nurse.</b></p> <p><b>Suspected deep tissue injury (DTI): – depth unknown.</b></p> <p><b>NB: patients with darkly pigmented skin, the initial signs of tissue damage may be difficult to detect. It can be identified as a purplish / bluish localised area of skin discolouration.</b></p>
<b>Patient &amp; Skin Assessment.</b>	<p><b>Identified Category 2 or above ulcers, refer to wound care guidelines and complete an Incident form. Completed: YES / NO</b> Signature..... Date.....</p> <p><b>Category 3 and 4 refer to wound care team and commence a Wound Care plan. Commenced: YES / NO</b> Signature..... Date.....</p> <p><b>Category 3 and 4 hospital acquired pressure ulcers Root Cause Analysis completed YES / NO/ N/A</b> Signature..... Date.....</p> <p><b>Referral to Safeguarding Adults required. Completed: YES / NO / N/A</b> Signature..... Date.....</p> <p><b>Continue to assess other pressure areas.</b></p>
<p><b>Aide Memoir:</b>  <b>Waterlow score</b> is an indicator of risk but does not override clinical judgement. Provide a support service matched to an individual's needs. The following guidance may be helpful.</p> <p><b>At risk 10+</b> Hospital foam mattress and chair with integral specialised foam.</p> <p><b>At high risk 15+</b> Consider hospital foam mattress, profile bed or mattress replacement eg. Auto-logic. Use a chair with integrated foam.</p> <p><b>Very high risk 20+</b> Consider using a dynamic mattress replacement system such as Auto-logic and/ or consider a profiling bed plus an alternating cell seat cushion Aura-logic.</p> <p><b>Specialised areas and Bariatric patients:</b>            Contact Wound Care Team e.g. for specialist equipment advice. Contact Ergonomics Advisor</p>	
<b>Skin Care</b>	<p>Skin care should be given based on the current state of the skin, with the aim of keeping it clean, not letting it remain wet, not letting it dry out and by avoiding accidental damage. This can be achieved by:</p> <p>Using a mild cleansing agent</p> <p>Applying emollients to dry skin</p> <p>Avoiding plastic draw sheets and other absorbent surfaces that increase moisture against the skin</p> <p>Reduce the effect of moisture on the skin by using barrier products e.g. Cavilon film / spray, avoiding Sudocrem and Metanium.</p> <p>Avoid shearing forces on the skin, through use of appropriate moving and handling techniques</p>

# Pressure Ulcer Educational Resource Book

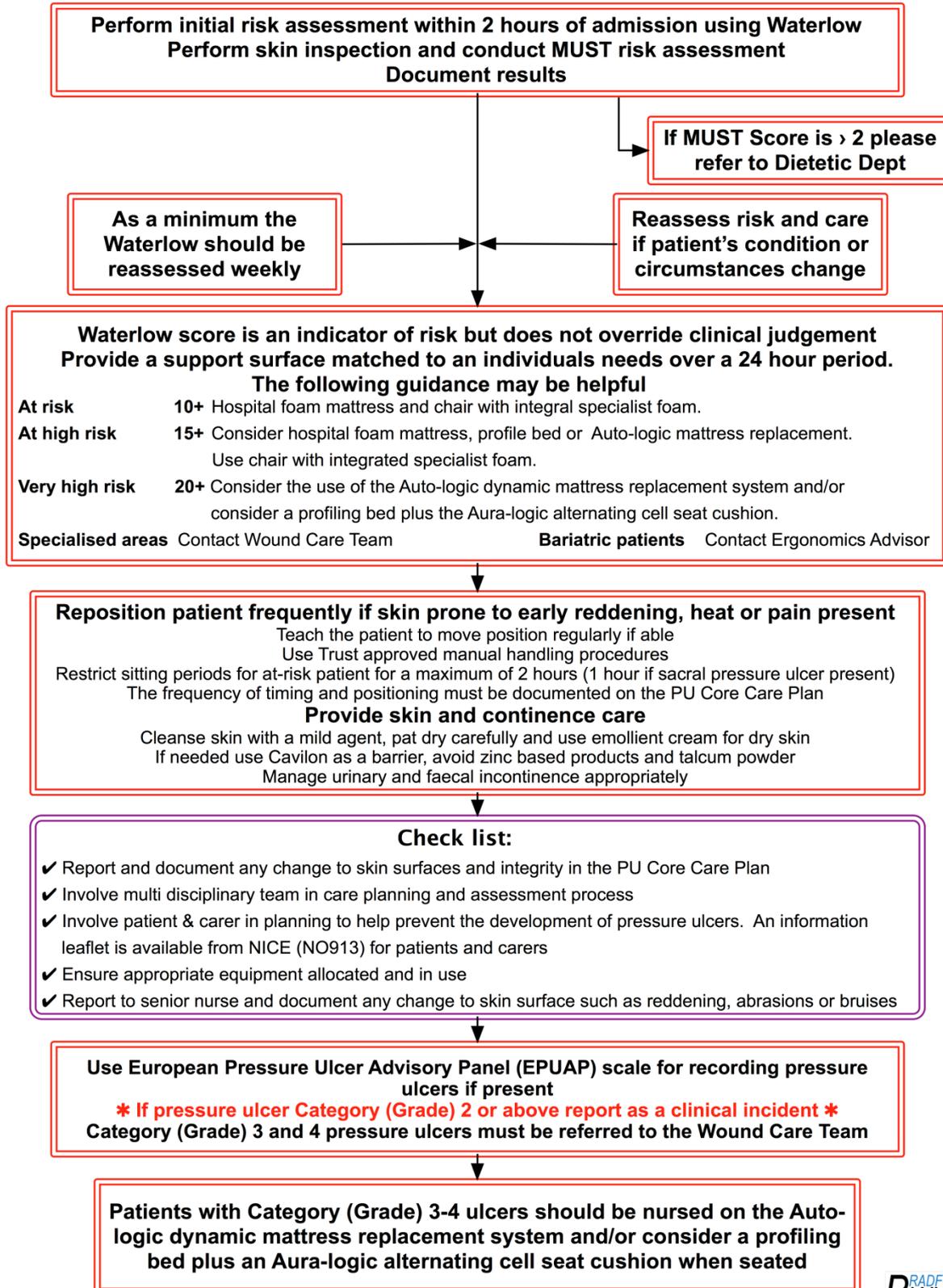
Equipment Record. Frequency = minimum daily completion							
<b>Date</b>							
<b>Time</b>							
<b>Mattress Type</b>							
<b>Cushion Type</b>							
<b>Bed Type</b>							
<b>Specialist Equipment</b>							
<b>Equipment working correctly</b>							
<b>Signature</b>							
<b>Equipment Codes</b>  Patients with Category 3 or 4 pressure ulcers should be on an Auto-logic mattress replacement	<b>Mattresses</b> 1. Foam mattress = <b>FM</b>  2. Auto-logic replacement = <b>AR</b>  3. Other mattress = <b>O</b> State.....  <b>Assess the need for a chair cushion</b>	<b>Cushions</b> Air Alternating = <b>AA</b>  High Density Foam = <b>HDF</b>  Integrated cushion = <b>IC</b>  <b>Sit out for maximum of 2 hours</b>	<b>Beds/ Specialised equipment</b> Profiling bed = <b>PB</b>  Heel elevators = <b>HE</b>  Slide sheet (placement under heels for protection from friction/shear) = <b>SS</b>				
Patient Repositioning							
<b>Date</b>							
<b>Time</b>							
<b>Position</b>							
<b>Signature</b>							
<b>Date</b>							
<b>Time</b>							
<b>Position</b>							
<b>Signature</b>							
Positioning codes: Right side = <b>R</b> Left side = <b>L</b> Right 30 degree tilt = <b>RT</b> Left 30 degree tilt = <b>LT</b> Back (supine) = <b>B</b> Front (Prone) = <b>F</b> Back sitting up = <b>BU</b> Sat out = <b>SO</b> Restrict sitting periods to a maximum of two hours at a time. Receiving Therapy = <b>TH</b>							
<b>Core Records</b>	Nutrition / hydration: nutritional assessment should be undertaken as part of the nursing assessment with appropriate actions taken as per nutrition policy  Adult protection issues must be considered in all patients with a pressure ulcer						



# Pressure Ulcer Educational Resource Book

## A1.3: Pressure ulcer risk assessment and care planning

### Pressure Ulcer Prevention and Care Planning



# Pressure Ulcer Educational Resource Book

## Appendix 2: Maelor Score – Pressure Ulcer Risk Assessment

### MAELOR Score Pressure Ulcer Risk Assessment

RISK ASSESSMENT	ASSESSMENTS										
Assign one value to each category	Date	1	2	3	4	5	6	7	8	9	10
<b>Ambulation</b>											
Ambulant without assistance	0										
Ambulant with assistance	2										
Chairfast (longer than 12 hours)	4										
Bedfast (longer than 12 hours)	6										
<b>Mobility – Range of Body Movements</b>											
Full active range of movements	0										
Requires assistance from one carer to move	2										
Requires assistance from two or more carers to move	4										
Immobile due to pain or other condition	6										
<b>Skin condition in Pressure Areas</b>											
Healthy	0										
Rash and/or dehydrated	2										
Advanced age (60+) and/or papery skin	4										
Oedema and/or redness (blanches with pressure)	6										
Pressure ulcer present (note grade below)	6										
<b>Predisposing Disease</b>											
None	0										
Chronic stable	2										
Acute or chronic unstable (critical)	4										
Palliative care	6										
<b>Levels of Consciousness (to commands)</b>											
Alert	0										
Lethargic/Confused	1										
Semi-comatose (responds to stimuli)	2										
Comatose (absence of response to stimuli)	3										
<b>Nutritional Status</b>											
Maintains weight, eating/drinking all meals	0										
TPN/NGF/oral sip feeds/NBM (short term)	1										
Eats/drinks very little/losing weight	2										
Unable/refuses to eat/emaciated/critically ill	3										
<b>Incontinence - Bladder</b>											
Total control/catheterized	0										
Occasional (less than 2 per 24 hours)	1										
Usual (more than 2 per 24 hours)	2										
Total (no control)	3										
<b>Incontinence - Bowel</b>											
Total control/stoma	0										
Occasional (less than 2 per 24 hours)	1										
Usual (more than 2 per 24 hours)	2										
Total (no control)	3										
<b>Pain (patient's report)</b>											
None	0										
Mild	1										
Moderate	2										
Severe	3										
<b>SEE OVERLEAF: FOR PRESSURE ULCER GRADING SYSTEM AND GUIDELINES FOR COMPLETION</b>											
	<b>TOTAL</b>										
	<b>Initials</b>										
Adapted from Medley Re: North East Wales NHST	<b>Grade of ulcer</b>										

# Pressure Ulcer Educational Resource Book

## A2.1: Guidelines for Completion of Maelor Score

### Assigning a numerical value to each category

Choose the level within the category that best describes the patients, and record the corresponding numerical value in the assessment column. Record one value for each of the 9 categories.

### Ambulation

This refers to the ability of the patient to walk. If you cannot decide between chairfast and bedfast, record a score of 5.

### Mobility

This refers to the ability of the patient to move different parts of the body. Immobility may be due to a variety of factors, e.g. severe pain, paralysis, coma. If a patient is receiving regular, passive exercise, record the score corresponding to the number of carers needed to produce body movement during each exercise session.

### Skin Condition

This refers to the skin condition in pressure areas only. *Redness (blanches with finger pressure)* refers to an evaluation you can perform while repositioning the patient. Finger pressure on the skin of pressure areas should cause the skin to go white initially, but to turn red again within seconds. If no blanching (whitening) occurs, then a pressure ulcer is present, and its grade should be documented below the total score. For patients with darkly pigmented, intact skin, *redness* in pressure areas is equivalent to a localized skin colour change, a taut, shiny surface to the skin and increased skin temperature.

### Predisposing Disease

*An acute or critical stage of an illness* refers to the period of approximately 48 hours immediately after an incident such as myocardial infarction, cerebrovascular accident or major surgical intervention, before the patient becomes stabilised. *Chronic unstable* refers to an acute phase of an otherwise chronic condition, which normally also last approximately 48 hours, e.g. hypoglycaemia or hyperglycaemia in a diabetic patient. Once the patient has stabilised, the condition is *chronic stable*. *Terminal stage of illness* refers to many conditions, e.g. heart, liver or kidney disease, not just too terminal cancer.

### Pain

The score registered should represent the patient's perception of pain whenever possible. Where this is not possible you should use your clinical judgement and observe the patient for signs of pain such as facial expression, splinting and protection of painful areas.

### Total Score

The total score obtained by adding together the numerical values from each of the 9 categories indicate the overall risk of the patient.

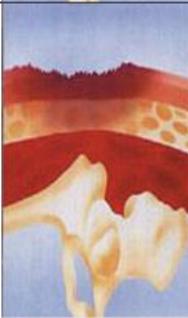
### Follow-up Action

It is imperative that patients identified as being at high risk of pressure ulcer development, and any patients already with pressure ulcers are placed on a suitable support surface, and a management plan implemented and evaluated. For information on prevention and management including suitable support surfaces, please refer to Tissue Viability Guidelines.

### Frequency of Assessment

The frequency of pressure ulcer risk assessment will depend on the condition of the patient. Assessment will normally be on a daily basis for medium and high-risk patients.

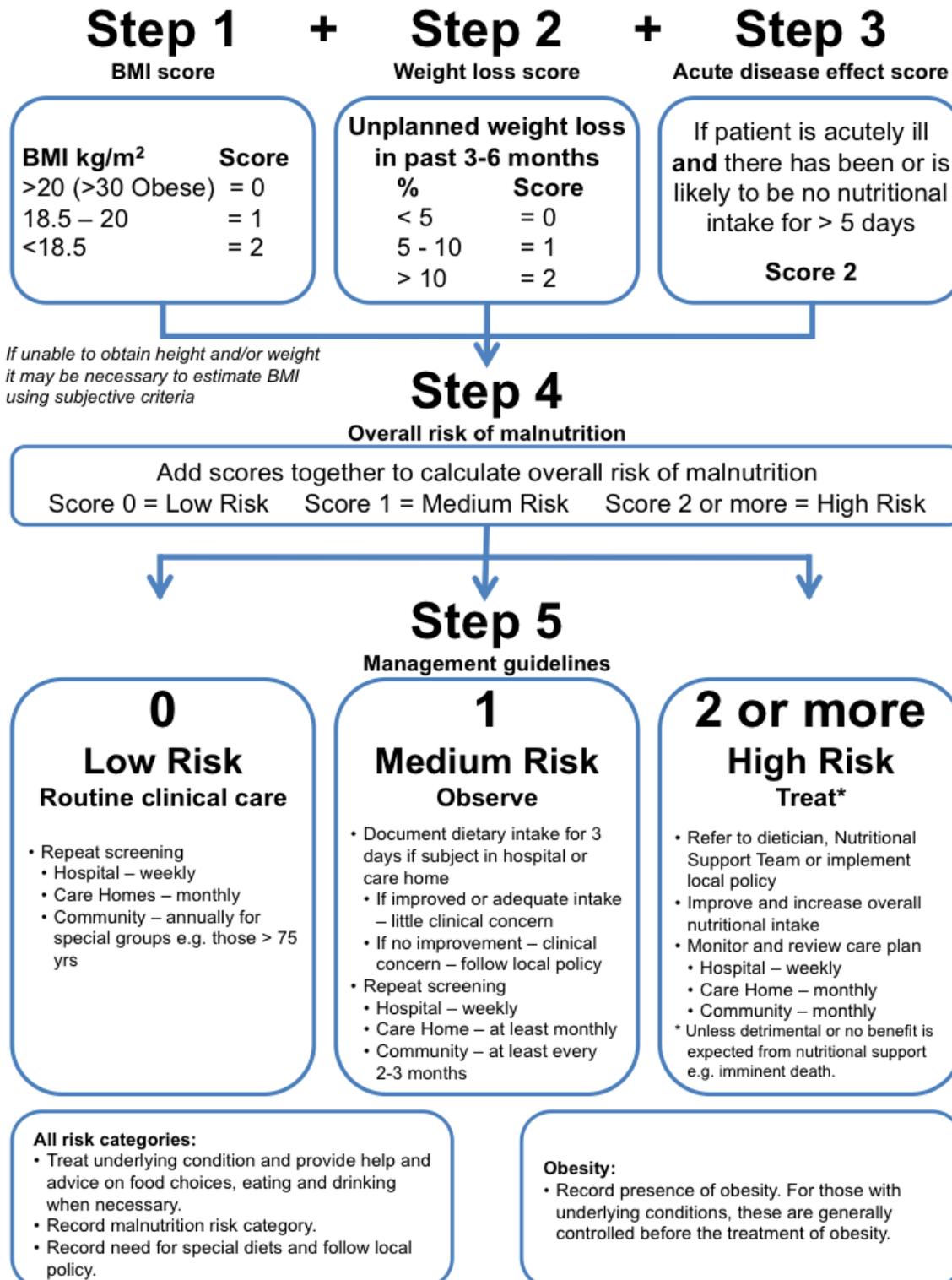
## Appendix 3: EPUAP Pressure Ulcer Classification System

<p><b>Category (Grade) 1: Non-blanchable erythema</b></p> <p>Intact skin with non-blanchable redness of a localized area usually over a bony prominence.</p> <p>Darkly pigmented skin may not have visible blanching; its colour may differ from the surrounding area.</p> <p>The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue.</p>		
<p><b>Category (Grade) 2: Partial thickness skin loss</b></p> <p>Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough.</p> <p>May also present as an intact or open/ruptured blister.</p> <p>This category should not be used to describe skin tears, tape burns, and incontinence associated dermatitis, maceration or excoriation.</p>		
<p><b>Category (Grade) 3: Full thickness skin loss</b></p> <p>Full thickness skin loss. Subcutaneous fat may be visible but bone, tendon or muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss.</p> <p>May include undermining and tunnelling. The depth of a Category (Grade) 3 pressure ulcer varies by anatomical location and can be shallow or deep.</p> <p>Bone/tendon is not visible or directly palpable.</p>		
<p><b>Category (Grade) 4: Full thickness tissue loss</b></p> <p>Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present. Often includes undermining and tunnelling.</p> <p>The depth of a Category (Grade) 4 pressure ulcer varies by anatomical location and can be shallow or deep; ulcers can extend into muscle and/or supporting structures (e.g., fascia, tendon or joint capsule) making osteomyelitis likely to occur.</p> <p>Exposed bone/muscle is visible or directly palpable.</p>		
<p><b>Ungradable: Full thickness skin or tissue loss – depth unknown</b></p> <p>Full thickness tissue loss in which actual depth of the ulcer is completely obscured by slough or necrosis in the wound bed. The true depth cannot be determined; but it will be either Category (Grade) 3 or 4</p>		
<p><b>Suspected Deep Tissue Injury – depth unknown</b></p> <p>Purple or maroon localized area of discoloured intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. Deep tissue injury may be difficult to detect in individuals with dark skin tones. These should be regarded as Category (Grade) 3 or 4</p>		

Adapted from NPUAP/EPUAP Guide to pressure ulcer grading: [www.epuap.org](http://www.epuap.org)

# Pressure Ulcer Educational Resource Book

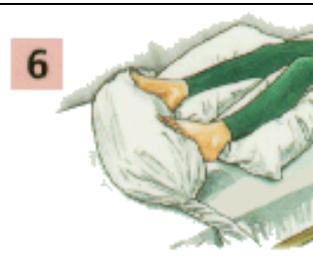
## Appendix 4: MUST Score for nutritional assessment



Re-assess subjects identified at risk as they move through the care setting or if their clinical condition changes significantly.

# Pressure Ulcer Educational Resource Book

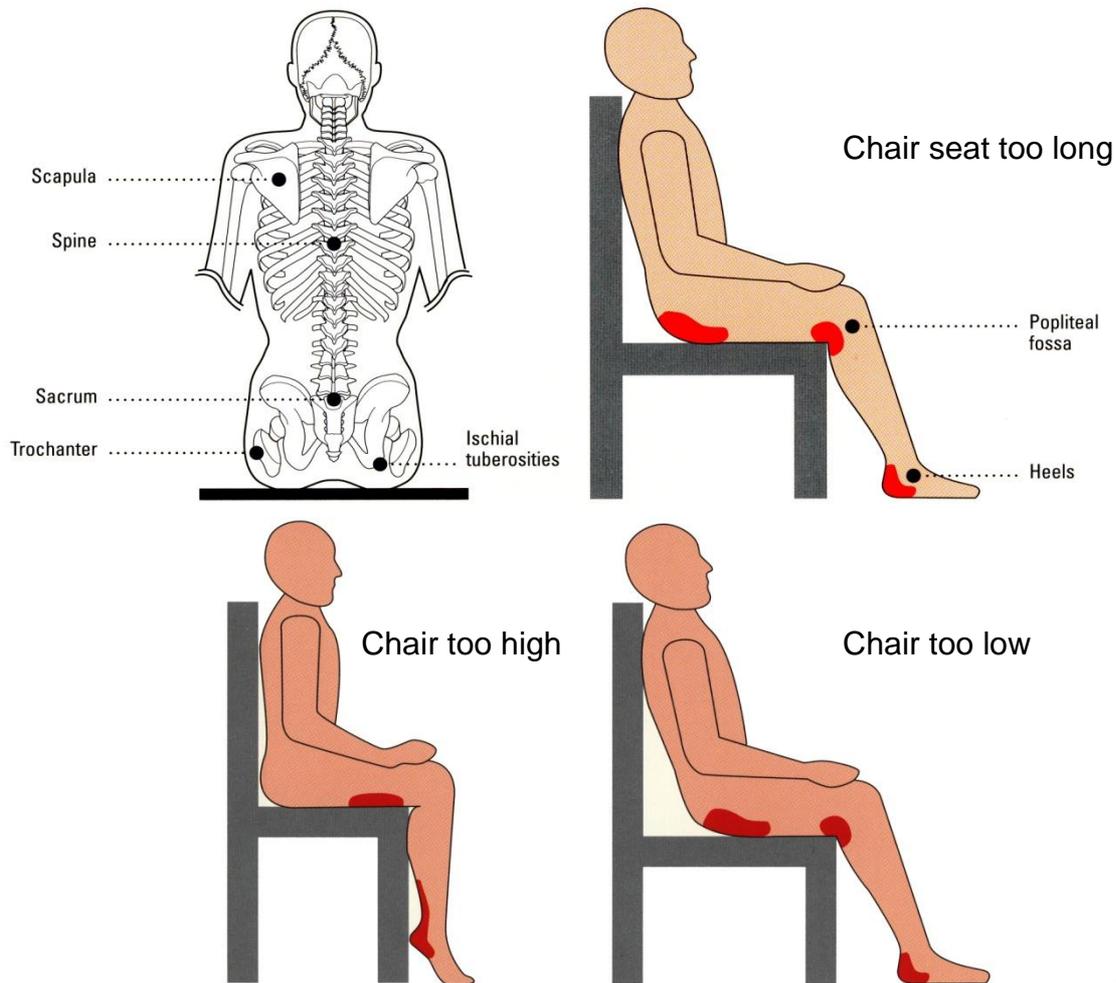
## Appendix 5: 30 degree tilt

Semi-recumbent position			
 <p>1</p>	<p>The patient's lower back should be positioned as far into the pillows as possible, to support the lumbar spine. Plump or fold the lower pillow if necessary</p>	 <p>3</p>	<p>The legs are supported as in diagram 3 and 4 of the recumbent position. Ensure the heels are clear of the mattress and the feet are correctly positioned.</p>
 <p>2</p>	<p>An additional pillow is placed underneath the others. The corner is carefully positioned under the buttock to 'tilt' the body and give clearance to the ischial tuberosities and sacrum</p>	 <p>4</p>	<p>The full semi-recumbent 30° 'tilt' position</p>
Recumbent position			
 <p>1</p>	<p>Lie the patient in the centre of the bed. Use one or two pillows to support the head and neck.</p>	 <p>4</p>	<p>Support the full leg by placing it centrally on another pillow. Ensure that the heel overhangs the edge of the pillow.</p>
 <p>2</p>	<p>Use a further pillow to support the lumbar region and shoulder. This 'tilts' the patient onto one buttock and lifts the sacrum clear of the mattress. Use your hand to check this clearance.</p>	 <p>5</p>	<p>An additional pillow gives further comfort to any unsupported areas of the other leg.</p>
 <p>3</p>	<p>The full recumbent 30° 'tilt' position.</p>	 <p>6</p>	<p>It may be necessary to use an extra pillow to prevent 'foot drop'.</p>

### POINTS TO REMEMBER

1. It is important to explain the whole procedure to the patient, prior to the repositioning, and to continue reassuring them.
2. Remember to ask the patient if they are comfortable and check their position at regular intervals.
3. The 30° tilt is used to promote patient comfort and to reduce pressure over high-risk areas. It should be used with, and not in place of, an appropriate pressure reducing support surface/mattress.

## Appendix 6: Seating: At risk areas



From Seating and Pressure Ulcer: Clinical Practice Guideline (TVS 2009)

The "at risk areas are:

- Ischial tuberosities
- Sacrum
- Trochanter
- Popliteal fossa
- Bony prominences
- Scapula
- Heels

Other areas include the elbow, medial aspect of the knee, palms of hands (wheelchair users) and the genitalia. Abnormal posture, insensate areas and immobility increase risks.

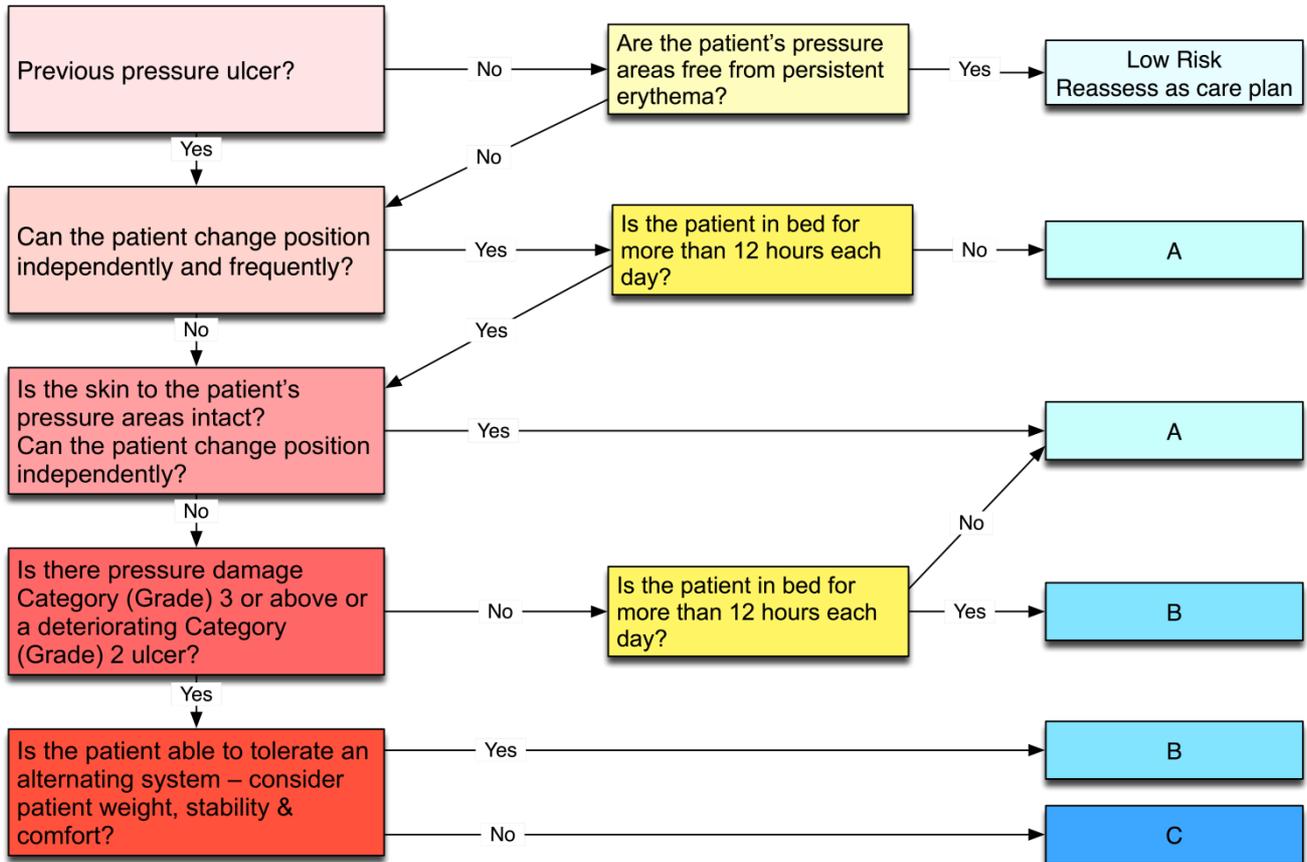
# Pressure Ulcer Educational Resource Book

## Appendix 7: Bariatric care planning

Assessment	<p>On admission, patient should be assessed for:</p> <ol style="list-style-type: none"> <li>1. Weight/height</li> <li>2. Estimate abdominal/hip girth related to ability for safe lateral repositioning or chair sitting.</li> <li>3. Level of dependency             <ol style="list-style-type: none"> <li>A. Total assist                 <ol style="list-style-type: none"> <li>a. ...Cannot support own weight and/or is uncooperative</li> <li>b. ...Little to no upper body strength</li> </ol> </li> <li>B. Partial assist                 <ol style="list-style-type: none"> <li>a. ... Able to bear weight but needs assistance more than supervision/instruction</li> <li>b. ... Reasonable upper body strength</li> </ol> </li> <li>C. Independent                 <ol style="list-style-type: none"> <li>a. ... Requires only supervision/instruction.</li> <li>b. ... Performs tasks safely with or without assistive devices</li> </ol> </li> </ol> </li> <li>4. Skin complications             <ol style="list-style-type: none"> <li>A. Candidiasis within perineum or skin folds.</li> <li>B. Incontinence-related dermatitis secondary to inability to perform personal hygiene</li> <li>C. Pressure ulcers</li> <li>D. Venous stasis/lymphoedema</li> </ol> </li> <li>5. Presence of monitoring/treatment equipment</li> </ol>
Treatment and management	<p>Patients specific nursing and equipment needs are dependent upon their weight, body form, mobility and specific medical requirements</p> <ol style="list-style-type: none"> <li>1. For patients &gt; 180 Kg and/or significantly widened hip girth consider use of appropriate size sensitive equipment             <ol style="list-style-type: none"> <li>A. Bariatric bed</li> <li>B. Bariatric bedside commode</li> <li>C. Bariatric chair and/or wheelchair</li> <li>D. Bariatric blood pressure cuff</li> <li>E. Bariatric patients gowns</li> <li>F. Appropriate DVT prevention</li> </ol> </li> <li>2. For patients requiring total or partial assistance with mobility appropriate size-sensitive lift, transfer, ambulation, and transportation equipment should be used</li> </ol>
Consultation and/or referral	<p>The following teams should be involved in the management of bariatric patients irrespective of their other medical and nursing needs.</p> <ol style="list-style-type: none"> <li>1. Wound care/Tissue viability nurse</li> <li>2. Ergonomics advisor</li> <li>3. Physiotherapy and Occupational Therapy</li> <li>4. Nutrition services</li> <li>5. Social Services</li> </ol>
Documentation and Communication	<p>Planned admission and discharge strategy and documentation with co-ordinated use of equipment and appropriate liaison with other agencies/departments</p>

# Pressure Ulcer Educational Resource Book

## Appendix 8: Community Equipment Selection Flowchart



### Key to categories:

Refer to manufacturers recommendations for use, including max & min patient weights

	Mattress	Cushion
A	Replacement foam mattress	Pressure redistributing cushion
B	Alternating air pressure (replacement)	High risk alternating cushion
C	Static low air loss mattress	High risk alternating or static cushion

All patients require the selection of appropriate pressure relieving equipment of the same category to cover their care needs over a 24-hour period. Document any reasons why a patient has not been provided with an appropriate mattress/cushion.

**THE PRESCRIBER MUST REVIEW THE NEED FOR THE EQUIPMENT ON A REGULAR BASIS.**

Refer to the equipment list from BACES, the equipment selection section (Page 13), section 4.4.2 Management of bariatric patients and Appendix 8 of this policy prior to selection of equipment.

April 2010

# Pressure Ulcer Educational Resource Book

## Appendix 9: Adult Protection Issues and Pressure Ulcers

### Protocol for Determining Neglect in the Development of a Pressure Ulcer

#### Issues to Support Decision

Review information already gathered about the patient then consider the pressure ulcer history. Any grade 3 ulcer (EPUAP - European Pressure Ulcer Advisory Panel Scale) should be considered as possible neglect.

Neglect is described in the Bradford District Adult Protection and Procedures Appendix 3 – Indicators of neglect.

“Persons physical condition/appearance is poor e.g. ulcers, pressure ulcers, soiled or wet clothing”.

If a patient presents with pressure ulcers, which are assessed as grade 3 or 4 on the EPUAP Scale, the following assessment should be done by a qualified nurse and the decision reviewed by a second clinical trained person.

Use the following criteria to assess the patient and the history of the development of the pressure ulcer.

To compile the report use the attached format. Review the standard and detail of documentation and evidence of care regime. Consider the evidence against the following criteria:

#### The Patient History

- Whether rapid onset and deterioration to a severe ulcer
- Patient Compliance/Behaviour
- Whether extensive damage in a low risk patient

#### Co-morbidity

- Medical history
- Chronic disease
- Palliative Care
- Mental Health issues

#### Care Regime

- Poor quality care: standard of assessment and use of relevant policy and procedures to support care and appropriate documentation with a plan of care.
- Whether appropriate equipment has been provided
- Evidence implementation of plan of care
- Continence management: hygiene
- Deterioration of appearance
- General indicators of care – e.g. clean nails, oral care
- Inappropriate prevention and treatment regimes
- Recurrent pressure ulcers
- Evidence of risk management

#### Hydration and Nutrition

- Evidence of intake monitoring
- Fluid balance
- Regular weighing

#### Under/over use of medication

- Note use of sedation if patient is immobile for extended periods
- Is pain assessed and managed

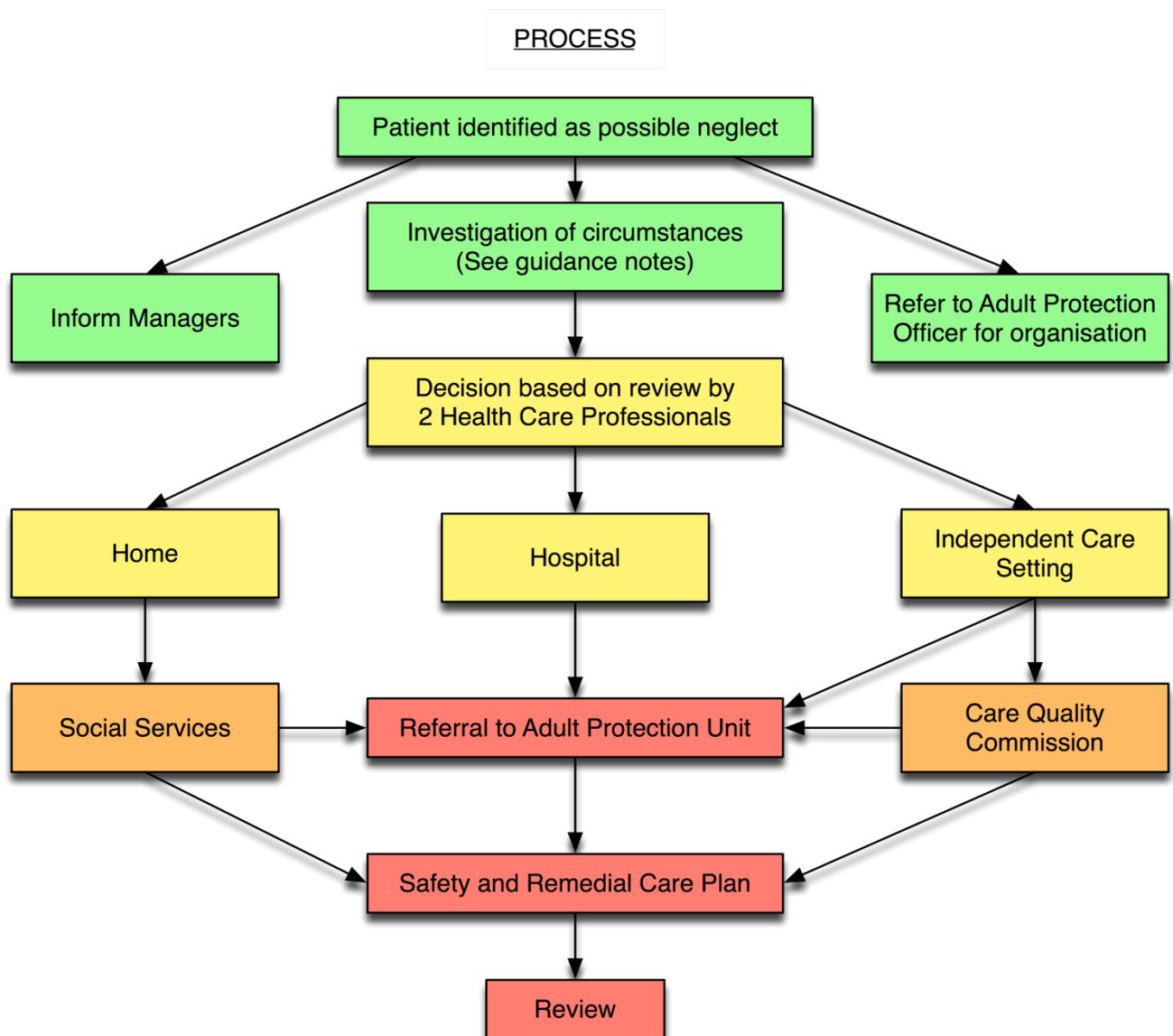
# Pressure Ulcer Educational Resource Book

## Contributory Circumstances of Pressure Ulcers

- Detailed history of patient journey - e.g. environmental changes
- Change (s) in care setting (s)
- History of falls
- Previous history of pressure ulcers
- Carer involvement
- Health and Social Care involvement

The information should be documented in the recommended format of a report (see attached template), and the case reviewed by a second clinical person, who should be part of the Adult Protection Working Group e.g. TVN, to support the decision.

For guidance on the prevention and treatment of pressure ulcers refer to the National Institute for Health and Clinical Excellence (NICE) Clinical Guideline 29 or Organisational Pressure Ulcer Policies.



April 2006

Reviewed – April 2010

Jackie Hansford – Adult Protection Co-ordinator

Kath Vowden – Consultant Nurse, Wound Care

# Pressure Ulcer Educational Resource Book

## A9.1: Preparing a report for Adult Protection.

**Name of Patient**

**DOB**

**Hospital number / NHS number**

**Place of current Care:**

*Previous place of care (if appropriate)*

**GP or Consultant**

### **Synopsis:**

*Report prepared by:*

*At the request of:*

*Date of report:*

*Purpose of report:*

*Main Findings:*

*Conclusions:*

### **Documentation available at time of reporting:**

#### **Patient relevant past history**

*Should include factual information of pre injury status highlighting medical diagnosis. Include the detailed patient journey and events recording documented dates/ times of assessments and action taken.*

*Record risk factors and other details that would impact on the subsequent care and injury.*

*This section should not contain any opinion or subjective data.*

#### **Recent events and description of incident**

*This should include detailed recent events that caused the situation to raise concern.*

*Raise issues that could contribute to injury or response to patient assessment.*

*This section should not contain any opinion or subjective data*

#### **Examination of patient**

*Describe patients' current status include the date of examination. Include photos if possible or details of wound assessment e.g. size (using grid), colour position etc.*

#### **Management**

*Report subsequent treatment and care including equipment, specialist care and investigations.*

# Pressure Ulcer Educational Resource Book

## **Opinion based on above information**

*This section could contain opinion but must be supported by above information or evidence and references (in the form of policy/guidelines, standard practice).*

*If you have insufficient information to form an opinion record as such.  
Ensure the opinion is objective and can withstand scrutiny and questioning.*

## **Conclusion:**

*This must be objective and accurate*

## **Recommendations:**

*Your opinion as to whether this case needs further information or investigation perhaps second opinion second examination.*

## **Authors details:**

*Name, Title, Place of work  
Qualifications that make you an expert able to comment on this case.*

## **Signed**

## **Second reviewer:**

*Name, Title, Place of work  
Qualifications that make you an expert able to comment on this case.*

## **Conclusions:**

*Agree/ disagree add comments*

## **Recommendations:**

*As above*

## **Signed**

## **Appendices:**

*E.g. Photographic image and dates.*

**This information is confidential to the adult protection group.  
All reports, paper and electronic, should be forwarded to Jackie Hansford to ensure safe protected storage.**

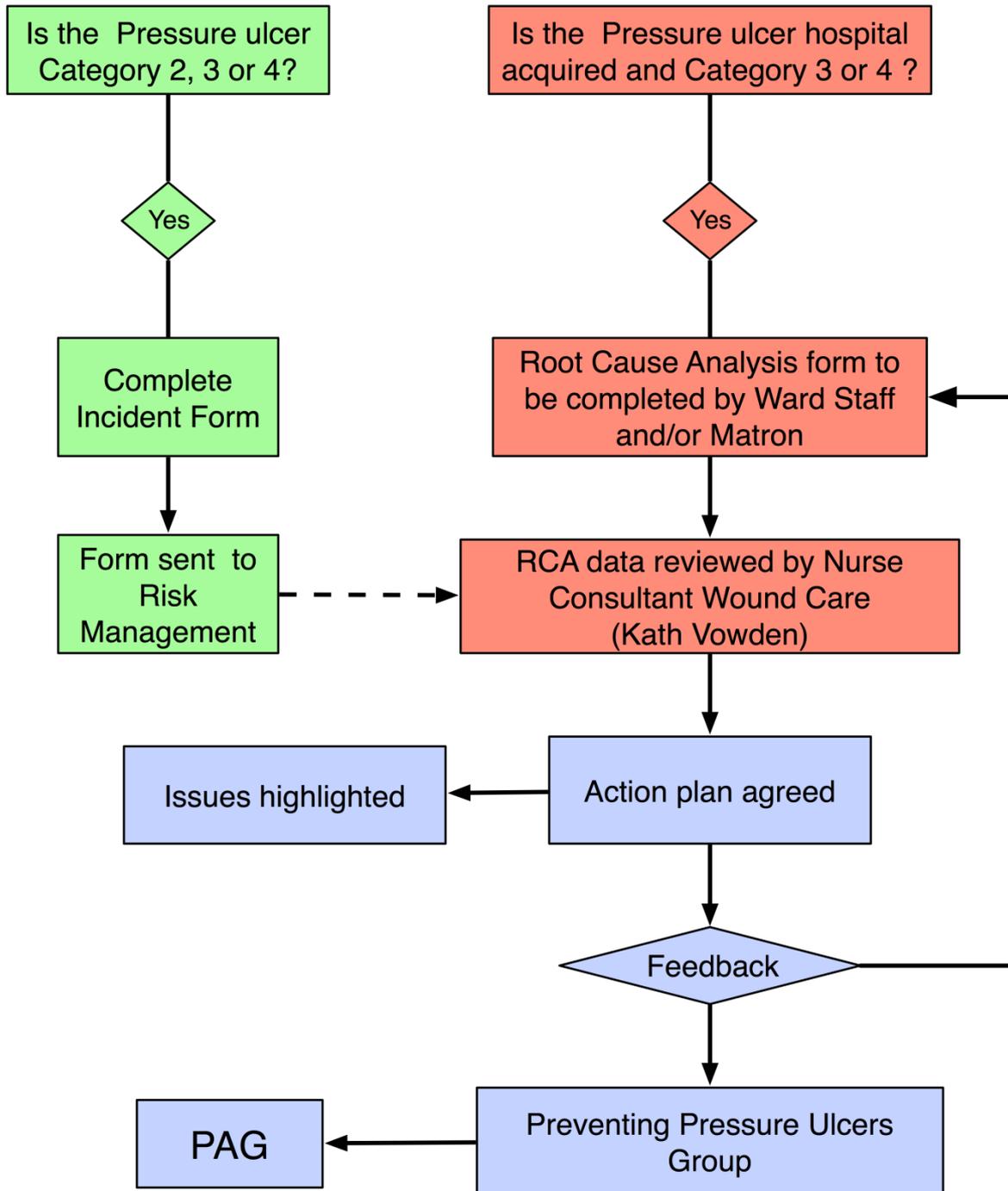
Jackie Hansford – Adult Protection Co-ordinator  
Kath Vowden – Nurse Consultant, Wound Care

April 2010

A10: Pressure Ulcer Root Cause Analysis Documentation

Process for reporting a Category (Grade) 2 or above pressure ulcer in a hospital patient:

# Hospital Pressure Ulceration Reporting



# Pressure Ulcer Educational Resource Book

Name: \_\_\_\_\_ Bradford Teaching Hospitals   
 Hospital No: \_\_\_\_\_ An NHS Foundation Trust

DOB: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ **Pressure Ulcer Root Cause Analysis Data**

To be completed for patients who develop a hospital acquired Category (Grade) 3 or 4 pressure ulcer				
Date of admission	____/____/____ Admission type: Elective <input type="checkbox"/> Acute <input type="checkbox"/> Emergency <input type="checkbox"/>			
Admitted from:	Home <input type="checkbox"/> Nursing/Residential (Care) Home <input type="checkbox"/> Other hospital <input type="checkbox"/> (state) _____			
Admission details	Directly to ward <input type="checkbox"/> A&E <input type="checkbox"/> Clinic <input type="checkbox"/> Other <input type="checkbox"/> (please state) _____			
	Were there any delays to admission?		Yes	No
	If yes please give details (time / reason for delay)			
Ward initially admitted to and any subsequent transfers.	Ward: _____ Transfer to Ward _____ Date: ____/____/____ Time: _____ Transfer to Ward _____ Date: ____/____/____ Time: _____ Transfer to Ward _____ Date: ____/____/____ Time: _____			
Reason for admission				
Current Clinical Management				
Relevant Past Medical History	e.g. Diabetes, Peripheral vascular disease, CVA, Spinal injury, Multiple sclerosis etc			
History of Pressure Ulceration	Has the patient had a pressure ulcer previously? <b>If yes give details below</b>		Yes	No
	Date: _____ Grade <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 Ungradable <input type="checkbox"/>		Site: _____ Outcome: Healed <input type="checkbox"/> Ongoing <input type="checkbox"/> Deteriorating <input type="checkbox"/>	
	Date: _____ Grade <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 Ungradable <input type="checkbox"/>		Site: _____ Outcome: Healed <input type="checkbox"/> Ongoing <input type="checkbox"/> Deteriorating <input type="checkbox"/>	
Did the patient have pressure relieving equipment prior to admission?	No	Yes	If yes give type: _____	
Admission assessment	Was a Waterlow risk assessment completed?		No	Yes
	Was there any delay in the assessment		No	Yes
	Was the Waterlow score accurate?		Yes	No
	Was a skin assessment completed?		Yes	No
Waterlow Score _____				
If yes how long? _____				
If No Correct Waterlow Score _____				
Skin status: _____				

# Pressure Ulcer Educational Resource Book

<b>Admission assessment</b>	Did the patient have any skin or tissue damage?		Yes	No	If yes give details below		
	Site: _____ Redness <input type="checkbox"/> Heat <input type="checkbox"/> Pain <input type="checkbox"/> Category		1	2	3	4	(circle) Ungradable <input type="checkbox"/>
	Site: _____ Redness <input type="checkbox"/> Heat <input type="checkbox"/> Pain <input type="checkbox"/> Category		1	2	3	4	(circle) Ungradable <input type="checkbox"/>
	Site: _____ Redness <input type="checkbox"/> Heat <input type="checkbox"/> Pain <input type="checkbox"/> Category		1	2	3	4	(circle) Ungradable <input type="checkbox"/>
Was the "At Risk" Core Care Plan completed?		Yes	No	Was a MUST Score completed on admission?		Yes	No
<b>If yes Score ____</b>							
<b>Equipment provision at initial admission assessment</b>	Was the patient nursed on a powered mattress?		Yes	No	If yes type _____		
	Was the patient on powered seat cushion?		Yes	No	If yes type _____		
	Was the pressure relieving device appropriate for the patient's "risk"?					Yes	No
	Date and time equipment in situ? Date: ____/____/____ Time: _____						
	Was there any delay to the provision of the appropriate pressure relieving equipment?		Yes	No	If yes how long _____		
<b>MDT involvement at admission</b>	Wound Care?	Yes	No	Date referral: ____/____/____ Date seen: ____/____/____			
	Physiotherapy?	Yes	No	Date referral: ____/____/____ Date seen: ____/____/____			
	Dietician?	Yes	No	Date referral: ____/____/____ Date seen: ____/____/____			
	Ergonomics?	Yes	No	Date referral: ____/____/____ Date seen: ____/____/____			
	Adult Protection informed	Yes	No	Date referral: ____/____/____ Date seen: ____/____/____			

Specific actions following development of a hospital acquired Grade 3 or 4 pressure ulcer							
<b>Care planning following development of a category 3 or 4 pressure ulcer.</b>	Pressure ulcer Grade		3	4	Ungradable <input type="checkbox"/>	Site _____ Date noted ____/____/____	
	Patient's Waterlow score before pressure ulcer developed				Date recorded ____/____/____		
	Was this score accurate?		Yes	No	If no what is correct score _____		
	Was an incident form completed?		Yes	No	Ref. No: _____		
	Was the patients Waterlow risk assessment score reviewed as per policy?					Yes	No
	Was a Pressure Ulcer Prevention and Management Core Care Plan completed?					Yes	No
	If Yes was it completed correctly?					Yes	No
	Is there evidence that it was evaluated and revised appropriately?					Yes	No

# Pressure Ulcer Educational Resource Book

Name: \_\_\_\_\_



Hospital No: \_\_\_\_\_

DOB: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

## Pressure Ulcer Root Cause Analysis Data

	Has the patient had skin assessments performed to the agreed frequency as indicated in the care plan?			Yes	No	
	Was a turn & repositioning schedule indicated in the care plan?			Yes	No	
	Was the turn & repositioning schedule adequate?			Yes	No	
	Was it completed as planned?			Yes	No	
Appropriate use of equipment	Is the patient currently nursed on appropriate pressure relieving equipment in line with guidance in the Pressure Ulcer prevention and management policy?			Yes	No	
	Is it being used correctly	Yes	No	Is it in good working order?	Yes	No
Identification of other causative factors.	What was the patient's mobility status? Bed-bound <input type="checkbox"/> Chair-bound (> 2 hours) <input type="checkbox"/>					
	Mobile with help <input type="checkbox"/> Restricted <input type="checkbox"/> Mobile <input type="checkbox"/> Other Comment: _____					
	Was the patient identified at risk of malnutrition?	Yes	No	If yes were they referred to the dietician?	Yes	No
	Did the patient have a prolonged intra operative period (>4 hours) in the preceding 7 days?			Yes	No	
Has the patient had a prolonged period away from the ward area in another department e.g. X-ray?			Yes	No		
Communication following development of pressure ulcer	Has the patient been referred to the wound care team?	Yes	No	Date of referral: ____/____/____ Date seen: ____/____/____		
	Has a safeguarding adults referral been made?	Yes	No	Date of referral: ____/____/____ Date seen: ____/____/____		
	Has the pressure ulcer been photographed?			Yes	No	
	Have the following people been informed?					
	Ward Manager	Yes	No	Date: ____/____/____		
	Medical Team	Yes	No	Date: ____/____/____		
	Patient	Yes	No	Date: ____/____/____		
Patient's relative(s)/ carer	Yes	No	Date: ____/____/____			
Matron	Yes	No	Date: ____/____/____			

# Pressure Ulcer Educational Resource Book

Summary of issues identified above	
Section	Issue
Admission	
History	
Assessment	
Care planning	
Other causes	
Communication	