A Practical Guide to the Management and Treatment of Wounds
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References
The development and publication of a practical guide to the management of and treatment of wounds is a result of work by members of Whiston Hospital wound care steering group members. Updated 2008 with added material from Liverpool PCT.

It will be updated annually to reflect updated practices and new wound care products.

It is the responsibility of the ward to ensure that the data contained within the folder is up-to-date.

The folder is meant to be utilised as an educational tool and a practical guide to assist in wound care practice.

All readers are recommended to verify data/Interventions discussed before treating patients or employing any therapies described in this folder.

Before any dressing is prescribed, allergies should be established.
Wound Care is an ever changing science. As new research and clinical experience broadens our knowledge, changes in treatment and drug therapies may be required.

The authors have checked with sources believed to be reliable in their efforts to provide information that is complete and generally in accord with standards accepted at the time of publication.

However, in view of the possibility of human error or changes in medical sciences, neither the authors or the trust are or will be responsible for misuse, misinterpretation, errors or omissions that may arise from utilizing information held in the folder.

The folder is meant to act as an ‘aid’ for staff and an education tool, it should not replace clinical judgement and all patients and wounds should be assessed individually.

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A pressure ulcer is an area of localised damage to the skin and underlying tissue caused by pressure, shear, friction and/or a combination of these (European Pressure Ulcer Advisory Panel 1998).

**Patients should receive an initial and ongoing risk assessment in the first episode of care.** Perform holistic assessment of patient’s risk factors of pressure damage including use of medley tool and develop care plan accordingly.

The pressure ulcer grade should be recorded using the European Pressure Ulcer Advisory Panel Classification System (see overleaf).

### Document the assessment of risk, noting all relevant factors including:

- Pressure, shear, friction
- Level of mobility
- Sensory impairment
- Continence
- Level of consciousness
- Acute/chronic or terminal illness
- Co-morbidity
- Systemic signs of infection
- Blood supply
- Pain
- Medication
- Posture
- Psychosocial status
- Previous pressure damage
- Extremes of age
- Nutrition and hydration status

### Assess pressure ulcer:

- Cause
- Site/location
- Dimensions
- Stage or grade
- Exudate amount and type
- Local signs of infection
- Pain - including cause, level, location and management interventions
- Wound appearance
- Surrounding skin
- Undermining/tracking
- Sinus or fistula
- Odour

NICE (2005)
Reverse grading

Pressure ulcer grading is only appropriate for defining the maximum depth of tissue involvement. Using pressure ulcer grading systems to describe healing must assume that full thickness pressure ulcers heal by replacing the same structural layers of body tissue that were lost. Clinical studies indicate that as grade 4 pressure ulcers heal to progressively more shallow depth, they do not replace lost muscle, subcutaneous fat, and dermis before they re-epithelialise.

A grade 4 pressure ulcer cannot therefore become a grade 3, grade 2, and/or subsequently a grade 1 ulcer.

General principles of prevention and management:

- Patients should receive an initial and ongoing pressure ulcer assessment
- This should be supported by photography and/or tracings (wound mapping)
- All those who are vulnerable to pressure ulcers should as a minimum be placed on a high specification foam mattress
- Ensure regular repositioning schedule is maintained dependant on skin inspection and health status
- Educate patient/carer re risk of tissue damage from friction/shear forces and importance of pressure ulcer prevention and management strategies
- Complete wound assessment chart – reassess regularly
- Ensure adequate dietary intake to prevent malnutrition to the extent that this is compatible with the individual’s wishes or condition
- Assess and manage pain related to the pressure ulcer or its treatment
- Assess and manage for signs of wound infection
- Ensure manual handling practices limit risk of friction and shearing
- Consider Manual Handling and Equipment Specialist Nurse referral
- Consider Occupational Therapy and/or Physiotherapy referral
A wound is defined as “a disruption of the integrity and function of the tissues in the body” (Baharestani 2004).

In order to plan and implement appropriate management, a full holistic patient assessment must be undertaken. Referral to the multidisciplinary team should be promoted to improve patient outcomes.

The process of wound healing is a normal response by the body to injury, which results in tissue repair or regeneration. In normal wound healing, the application of a dressing to a wound provides an optimal environment to wound healing. The key to effective wound management lies in the identification and optimisation of factors that could potentially delay the normal wound healing process and is therefore not just the act of applying a dressing.

Key objectives of wound assessment

- Thorough, holistic and systematic patient assessment
- Identification of factors that could delay wound healing (see overleaf), any allergies or sensitivities identified
- Type of wound
- Identify underlying cause of wound e.g. pressure ulcer, surgical, traumatic wound, leg ulcer
- To complete PCT documentation of assessment, treatment plan and rationale, reassessment, regular review and evaluation of effectiveness of treatment given
- Specific assessment of the wound
- Wound location and number of wounds
- Size – longest, widest and deepest points, any undermining, tracking recorded. May be supported by tracings
- Wound duration
- Grade – if pressure ulcer
- Nature of wound fluid – amount, colour, odour, and consistency
- Indications of infection
- Pain
- Assessment of surrounding skin
- Tissue type and percentage (%) - i.e. black necrotic, yellow slough, red granulating, pink epithelialising

Accurate assessment ensures continuity of care, improves communication between health professionals, promotes evaluation of the wound and provides supporting evidence to promote effective clinical decisions.
Factors That Can Adversely Affect Wound Healing

Adverse local conditions at the wound site
- Necrotic tissue
- Oedema
- Fall in wound temperature
- Excess exudate
- Dehydration
- Local hypoxia
- Foreign body
- Infection
- Mechanical forces (pressure, shear, friction)

Factors that can adversely affect wound healing

- Increasing Age
  - Decreased epidermal cell replacement
  - Reduced inflammatory response to injury
  - Altered barrier functions of the skin
  - Increased susceptibility to trauma
  - Reduced sensory perception

- Negative psychological factors
  - Altered body image resulting in actual or perceived problems with social relationships and roles
  - Social isolation
  - Additional life stresses e.g. bereavement
  - Patients’ lack of belief in treatment
  - Negative attitudes of staff towards treatment and healing

- Pathophysiological Factors
  - Malnutrition
  - Cardiovascular disorders e.g. peripheral vascular disease, chronic heart disease
  - Immune disorders e.g. rheumatoid arthritis
  - Endocrine/metabolic disorders e.g. anaemia, diabetes

- Inappropriate wound management
  - Failure to identify and correct where possible the underlying cause of the wound
  - Application of inappropriate topical agents and primary wound dressings
  - Poor wound dressing technique

- Adverse effects of other therapies
  - Radiotherapy
  - Cytotoxic drugs
  - Prolonged high-dose steroids
  - Miscellaneous drugs including anticoagulants, local anaesthetics, alcohol and nicotine

Adapted from Morison (2004)
Wounds as a risk for malnutrition

Studies show a link between nutritional status, healing and the onset of developing wounds (Xakellis and Frantz 1997). Early detection and nutrition support is therefore vital.

Wounds require protein to heal, but this can only happen if there is enough energy and protein to cover for the days needs as well. The elderly with wounds are the most at risk since a reduced appetite, taste sensitivity and preference for only small sugary meals makes meeting increased requirements less likely. Open wounds lose protein in the exudate, and once infected losses increase further. This can add an additional protein requirement of 0.5 – 0.8g/kg/day. Wound healing also requires additional Vitamin C and Zinc (Riou et al 1992) or else continued wound dehiscence occurs. Weight loss is a further risk factor, since it suppresses the immune response, decreases muscle mass/strength, in response to stress. An involuntary weight loss of as little as 4% is an independent factor in increased morbidity and mortality (Wallace et al 1995; Albina 1994; Breslow 1991).

Assessing the risk for malnutrition

The Malnutrition Universal Screening Tool (MUST) is recommended by NICE (2006), as a validated method of screening for malnutrition in hospital and community settings. It requires accurate weight and height, so can be difficult to use for the most vulnerable frail or bed bound patients. The Single Assessment Process (SAP), includes some observational criteria, such as loose fitting clothes or rings, in addition, to prompt a referral for a complete nutritional assessment from the Community Dietetic Nutrition Support Team.

Assessing the nutritional need

Once referred, further data will be collected to enable an individualised nutrition care plan to be developed. This will include:

- Anthropometric measurements such a mid arm circumference as a sensitive marker for muscle wasting
- Biochemical indices such as full blood count, serum ferritin and ideally a C-reactive protein count
- A weight history
- A dietary assessment including current protein, calorie and vitamin C intake

As a result of these factors, in combination with the clinical condition, the individual’s total nutritional requirements are identified.
Nutrition as treatment

The options:

- Increasing intake of foods that are high in calories and protein, often with the use of protein and calorie powders hidden within them; so called food fortification
- Supplementing or replacing meals with commercially prepared oral supplements, only some of which are nutritionally complete
- Providing enteral support of which the preferred route is gastrointestinal tube feedings, either as total or partial replacement, such as night time feeding for example

These alternatives will be used in combination, depending on the individual, once their tastes, needs and preferences are taken into account.

Recipes and written materials are provided to help carers and other health care professionals to support the plan.

The plan is monitored/evaluated to ensure it continues to meet the individual’s needs, amending as necessary.
All open wounds will produce exudate. This is a combination of the fluid normally found bathing the cells in the extra cellular space and additional fluid that leaves the blood supply. It migrates to the wound site under the influence of the body’s inflammatory response to wounding (Thomas 1997).

**Fluid type**
Fluid from acute wounds may have a beneficial effect on wound healing, as it is rich with growth factors and the necessary inflammatory components to promote healing. However, chronic wound fluid contains high levels of proteases (tissue-destructive enzymes) associated with delayed wound healing (Thomas 1997).

**Acceptable levels of fluid in a wound**
It is acknowledged that keeping wounds moist, that is, the presence of exudate is essential for wound healing. However, the correct moisture balance is difficult to define as it is suggested that wounds that are too dry will not heal optimally and wounds that are too wet will deteriorate (Bishop et al 2003). Many factors influence the production and nature of exudate including the type of dressing used, pressure, wound type, depth and surface area.

**Maceration**
Large volumes of fluid can, if poorly managed, lead to saturation of the wound bed and peri-wound area, resulting in their maceration i.e. the softening of tissue that has remained moist or wet for a long period. It appears as white soggy tissue, or excoriation (inflammation of the epidermis caused by an irritant such as chemical, bacteria or body fluid), which may lead to the breakdown of the peri-wound area and enlargement of the wound. Dressing leakage, wound pain, and prolonged healing times can also have a detrimental effect on a patient’s quality of life (Vowden and Vowden 2004). Other causes of skin maceration such as perspiration or incontinence should be excluded.

**Assessment**
- Exudate production can affect patient’s nutritional status - a holistic patient assessment is required; consider if venous blood sample for haemoglobin, urea and electrolytes or serum albumin is indicated
- Identify and treat any underlying cause e.g. infection or critical colonisation, consider the use of an antimicrobial dressing
- Correct any underlying pathological causes i.e. venous hypertension with compression or treat cardiac failure
- Assessment of exudate – record as per PCT documentation

There is no precise validated way of measuring the level of exudate, but it will provide a benchmark for further assessments and may indicate potential cause (Scanlon 2004).
The following should be recorded:

- **Amount** - copious, moderate, small or none
- **Colour** - normal exudate is described as straw coloured with a watery consistency, any change in consistency, colour (opaque or purulent) or malodour may indicate the presence of infection (Hampton, Stephen –Haynes 2005).

**Aim of treatment**
To achieve a balance between retaining moisture at the wound bed and preventing maceration of the peri-wound skin.

Ideally a dressing should be able to absorb fluid rapidly, have a large fluid retaining capacity and control lateral wicking. Dressing choice should be made dependant upon the amount of exudate, wound size and body position in consultation with the patient.

Frequency of dressing change - a realistic wear time should be estimated at dressing change to avoid wound becoming saturated according to manufacturer’s instructions.

**Care of the surrounding skin**
Protect the surrounding skin from maceration using an emollient, although care should be taken to ensure it does not compromise the functions of the dressing selected such as absorption or adhesion. Topical skin barrier films provide a moisture repellent film on the skin that does not interfere with the function or adhesion of dressings (Williams 2001).
The overriding goal of cleansing is to remove any hindrance to the maintenance or restoration of healing, achieved with the minimum of physical discomfort and psychological distress to the patient.

Only cleanse those wounds that have debris to be removed – necrosis/slough is often firmly attached and therefore debridement may be indicated.

The routine use of antiseptics in wound cleansing is not recommended as it may be detrimental to wound healing, the bacteria may develop a resistance, and there may be a potential toxic effect on viable tissue.

Cotton wool – not recommended as it can redistribute bacteria within wounds. It can also drive cotton fibres into the tissues and act as a foci for infection.

Warm tap water is an acceptable alternative method of cleansing chronic wounds. Short periods of soaking in lined buckets with warm tap water is particularly beneficial for lower leg wounds as it has a psychological benefit. However, prolonged soaking can produce an osmotic effect causing cells to swell.

Sterile saline solution 0.9%. This is an isotonic solution compatible with and has a similar osmotic pressure to living cells so should not cause cell damage during wound irrigation. Therefore it is considered a safe cleansing agent. However, as a vital part of wound healing is maintaining surface temperature, the solution should be used warmed to body temperature at the wound surface.

Although not proven, it is generally accepted that the optimum pressure to exert when cleansing wounds is 8-15 pounds per square inch (psi), plastic pod ampoules of sterile saline potentially exert 8psi. Pressures below this level may be ineffective at removing bacteria, but sufficient in removing remnants of dressing products (hydrogels, alginates) and excess exudate. Higher pressures conversely may remove bacteria - however it may also redistribute bacteria and result in splash back, which increases the risk of cross infection. Clinicians must consider the reasons for cleansing as noted above and ensure that the appropriate technique is adopted.
Debridement is the procedure of removing devitalised (necrotic) or infected tissue, fibrin or foreign material from a wound (NICE 2001). Unhealthy tissue impedes the natural healing process.

**Rationale for Debridement (Leaper 2002)**
- To enable assessment of the wound bed
- Dead or devitalised tissue acts as a medium for bacterial growth
- Dead or devitalised tissue within the wound bed leads to prolonged inflammatory response delaying the wound healing process
- Dead or devitalised tissue retards wound contraction

In some instances debridement is not an option. When there is evidence of peripheral arterial disease associated with gangrene, it is not appropriate to remove the necrotic tissue by creating a moist environment (autolytic debridement) as this may precipitate wet infected gangrene, which is potentially limb and/or life threatening.

**Factors to Consider in Choosing a Debridement Option**
- The timescale in which debridement should take place
- The risks and benefits of each method in the context of individual patient assessment
- Level of pain experienced by the patient
- Presence or absence of infection
- The patient’s attitude to debridement option
- Available skills, products and resources

**Methods of Debridement**

**Autolytic Debridement** – probably the most common method of wound debridement, but traditionally time consuming, it relies on enhancing the natural process of selective liquefaction, separation and digestion of necrotic tissue. It is enhanced by the use of moisture-retentive dressings such as hydrogels and hydrocolloids that promote rehydration of necrotic tissue by creating a moist wound healing environment. The accumulating wound exudate contains white blood cells and enzymes that break down necrotic tissue.

**Surgical Debridement** – if extensive debridement is required, this is performed by a surgeon in an operating theatre. Converts a chronic into an acute wound therefore reinitiating the wound healing process.

**Sharp Debridement** – performed at the patient’s bedside or home, this is the removal of dead tissue or foreign material just above the level of viable tissue (Poston 1996) by an appropriately trained health professional.

**Enzymatic Debridement** – not recommended. It is costly and there is no evidence to support its use (NICE 2001).

**Mechanical** – usually involves the use of wet to dry gauze dressings. It is the general consensus of expert opinion that this procedure damages healthy, granulating tissue, is extremely painful for the patient and leads to wound desiccation (Bradley et al 1999).

**Biological** – the use of maggots (larvae). Maggots have been shown to rapidly remove devitalised tissue from all wound types irrespective of their underlying aetiology.
When considering the process of dressing selection a number of factors may be taken into consideration:

- Wound type – superficial, full thickness, cavity
- Wound base – necrotic, sloughy, granulating, epithelialising
- Wound characteristics – exudate level, malodour, liability to bleed
- Bacterial profile – sterile, colonised, infected

**Dressing Requirements**

**Moisture** – Winter (1962) found that epithelial cells migrate over viable tissue and wounds heal three times faster in a moist environment.

**Thermal insulation** – any drop in temperature below 37 degrees delays mitotic activity for up to four hours (Torrance 1986). Leucocytes will not function in a low temperature wound – increasing the potential for clinical infection.

**Highly absorbtive** – exudate can be harmful to good skin. Chronic wound exudate can delay healing (Phillips et al 1998).

**Bacterial impermeability** - for protection of the wound against bacterial contamination. “Strike through” of exudate allows the passage for bacteria into, and out of, the wound.

**Free of contaminatnts** – cotton wool, remains of dressings, necrotic tissue are foreign bodies and are foci for infection.

**Low-adherent** – adherent dressings may tear dried exudate off the wound bed, causing trauma to newly forming tissues. Newly forming capillaries can grow through gauze loops and will be torn when the gauze is removed.

**Non-toxic/harmful** – many antiseptics have been found to damage healthy tissue.

**Patient factors** – acceptable to the patient and the need to bathe or shower for example. Taking into consideration known sensitivities, fragile tissue type or ethical considerations.

**The health professional** – have evidence to support a dressing’s effectiveness and be available in Primary and Secondary care to aid continuity of care.

(Adapted from Hampton and Collins 2004)

**NOTE:** No single dressing is appropriate for all wound types and all stages of healing.
<table>
<thead>
<tr>
<th>Wound Type</th>
<th>Treatment Aim</th>
<th>Treatment choice with a cavity</th>
<th>Treatment choice without a cavity</th>
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<tbody>
<tr>
<td><strong>NECROTIC</strong></td>
<td>Debride Remove eschar</td>
<td>Primary dressing</td>
<td>Secondary dressing</td>
</tr>
<tr>
<td>Low Exudate</td>
<td>Aquaform</td>
<td>Comfeel Plus or Active Heal Hydrocolloid</td>
<td>Low Exudate</td>
</tr>
<tr>
<td>Med Exudate</td>
<td>N/A</td>
<td>N/A</td>
<td>Med Exudate</td>
</tr>
<tr>
<td>High Exudate</td>
<td>N/A</td>
<td>N/A</td>
<td>High Exudate</td>
</tr>
<tr>
<td><strong>SLOUGHY</strong></td>
<td>Remove slough Provide clean base for granulation tissue</td>
<td>Low Exudate</td>
<td>Aquaform</td>
</tr>
<tr>
<td>Med Exudate</td>
<td>Aquacel</td>
<td>Allevyn Adhesive or Mepilex Bordered</td>
<td>Med Exudate</td>
</tr>
<tr>
<td>High Exudate</td>
<td>Aquacel</td>
<td>Allevyn Adhesive</td>
<td>High Exudate</td>
</tr>
<tr>
<td><strong>GRANULATING</strong></td>
<td>Promote granulation Provide healthy base for epithelialisation</td>
<td>Low Exudate</td>
<td>Aquaform</td>
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<tr>
<td>Med Exudate</td>
<td>Aquacel</td>
<td>Allevyn Adhesive or Mepilex Bordered</td>
<td>Med Exudate</td>
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<tr>
<td>High Exudate</td>
<td>Aquacel</td>
<td>Allevyn Adhesive</td>
<td>High Exudate</td>
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## Wound Dressings

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<thead>
<tr>
<th>Wound Type</th>
<th>Treatment Aim</th>
<th>Treatment choice with a cavity</th>
<th>Treatment choice without a cavity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EPITHELIALISING</strong></td>
<td>Promote epithelialisation and wound maturation</td>
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<td></td>
</tr>
<tr>
<td>Low Exudate</td>
<td><strong>Primary dressing</strong> Comfeel Plus or Active Heal or Film</td>
<td><strong>Secondary dressing</strong> N/A</td>
<td><strong>Primary dressing</strong> Low Exudate Film or Active Heal Hydrocolloid</td>
</tr>
<tr>
<td>Med Exudate</td>
<td>Allevyn or Mepilex Bordered</td>
<td>N/A</td>
<td>Med Exudate Comfeel Plus N/A</td>
</tr>
<tr>
<td>High Exudate</td>
<td>N/A</td>
<td>N/A</td>
<td>High Exudate N/A</td>
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| **INFECTED**        | Manage Infection                                     |                                |                                   |
| Low Exudate         | **Primary dressing** CarboFlex or Mepilex Bordered Allevyn Adhesive | Low Exudate Autrauman Ag CarboFlex |
| Med Exudate         | Silvercel/Ag                                          | CarboFlex or Mepilex Bordered Allevyn Adhesive | Med Exudate Silvercel/Ag Autrauman CarboFlex or Mepilex Bordered Allevyn Adhesive |
| High Exudate        | Silvercel/Ag                                          | CarboFlex or Allevyn Adhesive   | High Exudate Silvercel/Ag Autrauman CarboFlex or Allevyn Adhesive |

Please note: When a wound infection is diagnosed ensure the patient is on appropriate antibiotics and assess wound daily.

<table>
<thead>
<tr>
<th><strong>FUNGATING MALODOROUS</strong></th>
<th>Manage complex wound e.g. bleeding, exudate, malodour, size, site</th>
<th>Low Exudate N/A</th>
<th>N/A</th>
<th>Low Exudate N/A</th>
<th>N/A</th>
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<td>CarboFlex</td>
<td>High Exudate Aquacel</td>
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Please note: Metrotop should only be used in fungating wounds to assist with control of malodour.

When there is a choice of dressings recommended, the choice should be dictated by the fragility of the patients skin.
HAVE YOU DONE BLANCHING TEST?

Definition: Non-blanchable erythema of intact skin. Discolouration of the skin, warmth, oedema, induration or hardness may also be used as indicators, particularly on individuals with darkers skin.

Identification: Apply light finger pressure to area of discolouration, upon removal peripheral flush should appear. If not and area remains discoloured treat as grade one pressure sore.

TREATMENT

- Photograph area - contact Medical Photography
- Cover and protect with film dressing to reduce risk if caused by friction and shearing
- Assess daily
- Ensure patient nursed on pressure reducing/relieving surface
- Limit time sat out to 2 hourly if on heels/sacrum
- Complete IR1 form and send to TVN
- Complete wound assessment chart
- Ensure manual handling practices limit risk of friction and shearing
- Educate patient re: Risk of friction and shearing
- Give patient pressure sore information booklet
- Risk assess as per trust policy eg: x 3 weekly and action as per results
- Obtain pressure relieving or reducing cushion for when sat out
Definition: Partial thickness skin loss involving epidermis, dermis, or both. The ulcer is superficial and presents clinically as an abrasion or blister.

IS TISSUE DAMAGE CAUSED BY

FRICITION

- Photograph area - contact Medical Photography
- Occlude/protect and promote re-epithelisation with eg: Active Heal Hydrocolloid/Comfeel Plus
- Educate Patient re: Risk of tissue damage from friction
- Give patient pressure sore information booklet
- Utilise slide sheets, hoist, profiling bed, etc. to reduce friction
- Seek advice from OT/Physio re: positioning and suitability of seating

PRESSURE

- Photograph area - contact Medical Photography
- Occlude/protect and promote re: epithelisation with eg: Active Heal Hydrocolloid/Comfeel Plus
- Ensure patient risk-assessed as per policy and actioned
- Ensure patient nursed on pressure relieving mattress and cushion (when sat out)
- Ensure areas at risk are assessed daily and frequency of turning determined and documented
- Educate patient re: course of tissue damage and give them patient information booklet
- Use Repositioning Schedule
- Complete wound assessment form and update at each dressing change
- Complete a Pressure Ulcer notification form SHK 138
**Definition:** Full thickness skin loss involving damage necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia.

**IS THERE SIGNS OF CLINICAL INFECTION**

**YES**
Refer to wound infection referral pathway

**NO**
- **Photograph area - contact Medical Photography**
  Ensure patient nursed on pressure relieving mattress and cushion
  Ensure regular repositioning
  Risk assess and action as per policy
  Complete wound assessment chart and update at each dressing change
  Complete Pressure Ulcer notification form SHK HN 138
  Use Repositioning Schedule

**IS THE WOUND**

Sloughy → Refer to formulary dressing guide
Epithelising
Granulating

Necrotic

Is there any evidence of Ischaemia

**YES**
Refer to tissue viability. Keep area dry. Do not debride

**NO**
Refer to formulary dressing selection guide
**ASSESS PATIENTS DIETARY INTAKE. IS SERUM ALBUMIN LOW?**

**YES**

Refer to dietician. Encourage high protein diet

**NO**

**OTHER VARIABLES TO CONSIDER?**

Mobility - Contact OT/physio.

Pain - Regular analgesia.

Anaemia - FBC, WCC etc.

If Patient on Steroid therapy - Consider Vitamin A supplements may help counteract the effects of steroids which suppress the inflammatory phase of healing.

Consider Vit C, Zinc supplements. If Zinc supplements given re check levels weekly.

For further advice refer to tissue viability nurse.

Check CRP and Serum Alb
CRP normal albumin ↓
= proteins depletion
shows seriousness of illness
CRP/Albumin ↓
Definition: Extensive destruction, tissue necrosis, or damage to muscle, bone, or supporting structures with or without full thickness skin loss.

IS THERE SIGNS AND SYMPTOM OF INFECTION

YES

Refer to wound infection referral pathway

NO

• Photograph area - contact Medical Photography

Complete fully wound assessment chart and Pressure Ulcer notification form SHK HN 138

Refer to wound care formulary poster re: Appropriate dressing choice

If you can probe to bone, this is suggestive of concomitant osteomyelitis

Order X-ray of area/if osteomyelitis commence. 6-12 week treatment of antibiotics as per policy

Check HB, CRP, Serum Albumin

Refer to appropriate member of multidisciplinary team, OT, physio TVN, microbiologist

Ensure patient nursed on appropriate pressure relieving mattress
Ensure time spent seated is limited to 2 hourly per session utilising a pressure relieving cushion.

Seek advice from OT/physio re: appropriateness of seating.

Ensure pressure areas are checked regularly and turning regime established.

Consider Vit C, multi Vits and zinc.
Before commencing a dressing regime assessment of aetiology is essential. Leg ulcer can be divided into 3 entities:

- **Venous leg ulcer** - due to venous insufficiency
- **Arterial leg ulcer** - due to Ischemia reduced blood supply
- **Mixed aetiology** - Combination of venous and arterial disease

It is crucial that you identify the aetiology of an ulcer prior to dressing, as treatment regimes will differ according to ulcer type.
**Definition:** A loss of skin below the knee, usually in the Gaiter area, which takes more than 6 weeks to heal.

**Venous Leg Ulcer**

**CLINICAL SIGNS AND SYMPTOMS**

- Varicose Veins
  - Ankle flare - a distinctive vein pattern noted on the inner aspect of the ankle
  - Lipodermatosclerosis - a change in the texture of the skin as fat is replaced by fibrous tissue
  - Skin staining - Skin atrophy - Eczema

**ARE PRESENT**

**NO**
- FOLLOW ARTERIAL PATHWAY

**YES**
- Has patient got any arterial insufficiency - eg previous DVT
  - Peripheral vascular disease
  - Chronic heart disease

**YES**
- Conduct Dopplers

*NB Until differential diagnosis is made and decision about compression taken treat ulcer as per Wound Care Formulary (see Leg Ulcer dressing section) for grade and classifications.*

*Dressing should be non-adherent.*
**Definition:** A loss of skin which does not heal and is due to a Vascular condition. Arterial ulcers can occur anywhere below the knee, but are most commonly seen on the lower leg and foot. These ulcers are often deep and invade underlying structures.

**Clinical Signs and Symptoms**

- Pain particularly when resting or on leg elevation
- Skin pallor
- Dependent redness
- Reduced skin temperature
- Sluggish venous filling
- Poor capillary refill
- Dystrophic nails

If **ARE PRESENT**

- Conduct Dopplers
- If ABPI 0.8 or below: Refer to Vascular Team
- If ABPI above 0.8: Refer to Venous Pathway

If **NO**

- Refer to Venous Pathway
- If cannot diagnose Aetiology: seek further help Tissue Viability Nurse

**PLEASE NOTE** ARTERIAL WOUNDS SHOULD **NOT** BE TREATED WITH ANY COMPRESSION. FURTHER DEBRIDEMENT IS NOT RECOMMENDED UNTIL SEEN BY VASCULAR SPECIALIST. DRESS WITH NON-ADHERENT DRESSING AND NIL COMPRESSION BANDAGE.
### Non Compression Treatment Options

#### Leg Ulcers (mixed/venous ulcers)

<table>
<thead>
<tr>
<th>Tissue Type</th>
<th>Indicator/Descriptor</th>
<th>Management Aims</th>
<th>Dressings</th>
<th>Other Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Necrotic</strong></td>
<td>Identified by presence of predominantly black or yellowish brown tissue</td>
<td>To rehydrate eschar</td>
<td>Partial Thickness&lt;br&gt;&lt;br&gt;Primary dressing: Aquaform&lt;br&gt;Secondary dressing: Comfeel Plus Active Heal Hydrocolloid</td>
<td>Full Thickness&lt;br&gt;&lt;br&gt;Primary dressing: Aquaform&lt;br&gt;Secondary dressing: Comfeel Plus Active Heal Hydrocolloid</td>
</tr>
<tr>
<td><strong>Sloppy</strong></td>
<td>Identified by formation of viscous, predominantly yellow layer of tissue</td>
<td>To remove all debris and promote autolysis which is breakdown and removal of slough</td>
<td>Primary dressing: Aquaform&lt;br&gt;Secondary dressing: Low exudate - Comfeel Plus Medium - Mepilex bordered High - Allevyn Mepilex bordered</td>
<td>Primary dressing: Aquaform&lt;br&gt;Secondary dressing: Low exudate - Allevyn Comfeel Plus Medium - Mepilex bordered High - Aquacel/Allevyn Mepilex bordered</td>
</tr>
<tr>
<td><strong>Granulating</strong></td>
<td>Wound has ‘granular’ appearance, looks red and bleeds easily</td>
<td>To protect angiogenesis and promote wound healing. Angiogenesis = synthesis of new blood vessels</td>
<td>Atrauman&lt;br&gt;NA ultra&lt;br&gt;Allevyn Adhesive&lt;br&gt;Mepilex bordered&lt;br&gt;Comfeel Plus&lt;br&gt;N.B. Aquaform Gel may be used to promote the healing process</td>
<td>Atrauman&lt;br&gt;NA ultra&lt;br&gt;Allevyn&lt;br&gt;Mepilex bordered&lt;br&gt;Comfeel Plus&lt;br&gt;N.B. Aquaform Gel may be used to promote the healing process</td>
</tr>
<tr>
<td><strong>Epithelialising</strong></td>
<td>Wound is pink in appearance, tissue very fragile and needs to be kept moist</td>
<td>To protect and promote new tissue growth</td>
<td>Atrauman&lt;br&gt;NA ultra&lt;br&gt;Active Heal Hydrocolloid</td>
<td>Active Heal Hydrocolloid&lt;br&gt;Comfeel Plus</td>
</tr>
<tr>
<td>Leg Ulcer Type</td>
<td>Indicator/Descriptor</td>
<td>Management Aims</td>
<td>Treatment Options</td>
<td>Other Considerations</td>
</tr>
<tr>
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</tr>
<tr>
<td>VENOUS</td>
<td>- Usually gaiter area. Exuding wound, shallow with diffuse edge. - Generalised oedema and staining of skin will occur. - Some pain. Doppler assessment greater than 0.8.</td>
<td>- To reduce pressure in superficial venous system - Aid venous return by increasing velocity of flow in deep veins - Reduce oedema.</td>
<td>MULTI-LAYER COMPRESSION SYSTEM - PROFORCE*</td>
<td>Nutrition: There is evidence to demonstrate that adequate levels of protein, fat, carbohydrates, vitamins and trace elements are necessary in wound healing, especially in collagen formation and maturation. It is important to note that the wound is a symptom of the underlying condition. In order for successful healing to occur, it is necessary to treat the underlying cause (i.e., venous or arterial problem). Pain control is an important factor in obtaining patient compliance to any treatment regime. Careful consideration should be given to a programme of pain management/analgesia tailored to the needs of each particular patient. The aim of any programme should be to maximise patient comfort and adherence to treatment. In the case of venous leg ulcers, recurrence can be substantially reduced by continuous application of compression hosiery after healing. Assessment of positioning to reduce oedema, be aware of eczematous changes. Patient education.</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>MIXED</td>
<td>- Of both venous and arterial aetiology. - Involves both venous problems and arterial insufficiency. - Doppler assessment between 0.6 and 0.8.</td>
<td>- Increase venous return. - Reduce pain and oedema. - Prevent infection.</td>
<td>INELASTIC COMPRESSION: 3 layer reduced compression bandage with N/A</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- If Doppler RPl&lt;0.8, indicates significant arterial impairment.</td>
</tr>
<tr>
<td>ARTERIAL</td>
<td>- Any part of leg, commonly below ankle. - Dry wound, deep with cliff edges. - Localised oedema, no staining of skin. - Pain greater at night, doppler less than 0.6.</td>
<td>- Reduce pain. - Prevent infection - Vascular Investigations - Prevent maceration</td>
<td>NO COMPRESSION: Compression should never be used on arterial ulcers. ABPI&lt;0.6 need referral to vascular surgeon. Diabetics may have normal ABPI but compression is not appropriate, always suspect peripheral arterial disease and neuropathy. - Do not use debriding agents until advice sought.</td>
<td></td>
</tr>
</tbody>
</table>

Never attempt Compression Bandaging unless Aetiology assured and competent in Application
Lipodermatosclerosis

**Definition:** A change in the texture of the skin as fat is replaced by fibrous tissue.

**Clinical Signs and Symptoms**

- Induration
- Hyperpigmentation
- Depression of the skin

**Treatments**

- Clean legs daily/soak in bucket/bath and use an emollient or bath
- Remove flaky/hyperkeratotic skin
- Moisturise with 50% x 50% white paraffin

**Emollients of Choice**

- Oilatum
- Balnaeum
Lymphoedema

Definition: A swelling in the tissues below the skin when lymph cannot drain away causing thickening and fibrosis of one or more parts of the body.

Clinical Signs and Symptoms

- Swelling
- Heaviness
- Tightness
- Uncomfortable
- Dry/hyperkeratotic skin
- Reduced function of affected limb

Treatment

- 10% salicylic acid in yellow soft paraffin to Hyperkeratosis
- Moisturise dry skin
- Remove Hyperkeratotic skin
- Soak in emollient
- Refer to Dermatology Specialist Nurse to establish if short stretch bandaging applicable
<table>
<thead>
<tr>
<th>Type/Description</th>
<th>Management Aims</th>
<th>Treatment Options</th>
<th>Other Considerations</th>
</tr>
</thead>
</table>
| **CENTRAL LINE/PICC'S** | Secure long term placement  
Maintaining a dry site  
Avoiding complications including infection and septicaemia | Tegaderm IV      | Ideally the dressing should be transparent (i.e. for a visible site), waterproof and bacteriaproof and have high moisture vapour permeability  
NB: Removal via pull and stretch method |
| **PERIPHERAL SITES**     | Ease of use  
Maintaining a dry site  
Security of cannulae  
Avoiding complications | Tegaderm IV      |                                                                                |

It is thought that up to 75% of patients entering hospital will have an IV device inserted at some time during their stay. There is a risk of complications arising from IV therapy: patients are more susceptible to nosocomial bacteraemia than those not receiving treatment. IV related problems not only cost the NHS millions of pounds in extra bed days and antibiotics, but also nursing time. It is absolutely essential to use a specifically designed IV dressing which provides a safe, dry and secure site.
<table>
<thead>
<tr>
<th>Wound Type</th>
<th>Description</th>
<th>Treatment Aim</th>
<th>Dressings</th>
<th>Other Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypergranulated Wound</td>
<td>Appearance - red raised granulating tissue above the level of the surrounding epidermal skin layer</td>
<td>Reduce further hypergranulation</td>
<td>Low adherent dressing</td>
<td>If the hypergranulation is around a foreign body e.g. PEG site, the overgranulation may continue until the foreign body is removed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Promote epithelialisation</td>
<td>Polyurethane foam</td>
<td>Constant movement of suprapubic catheters, gastroscopy tubes etc should be avoided as it may create friction and prolong inflammation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manage exudate</td>
<td></td>
<td>Stop any interactive dressings that may be promoting further granulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide comfortable dressing</td>
<td></td>
<td>Ensure possibility of malignancy has been excluded</td>
</tr>
<tr>
<td></td>
<td>Note: also known as overgranulation</td>
<td></td>
<td></td>
<td>Following wound assessment consider the use of antimicrobial to treat possible critical colonisation of bacteria or infection</td>
</tr>
</tbody>
</table>
Swab whole wound if practicable. If unable to do this, divide wound into sections, name each section i.e. upper left, lower right and document on swab carrier and bacteriology form.

Apply swab with light pressure using a zig zag motion, and rotating the swab between the fingers. Sample the whole wound surface avoiding the wound edges.
Transport swab as soon as possible to laboratory. If delays exceed 24 hours, ensure refrigerated.

Complete all details on bacteriology form, particularly clinical information.
### Infected Wounds

<table>
<thead>
<tr>
<th>Type</th>
<th>Indicator/Descriptor</th>
<th>Management Aims</th>
<th>Treatment Options</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>CONTAMINATED (1)</strong></td>
<td>Traumatic wounds&lt;br&gt;Swab only if clinical signs of infection present, then follow guidance for infected wound</td>
<td>Promote healing</td>
<td>Inadine - low exudate Carboflex</td>
<td>Systemic antibiotics are required to resolve infection in clinically infected cases</td>
</tr>
<tr>
<td></td>
<td>Normal situation for most chronic wounds&lt;br&gt;Swab only if clinical signs of infection then follow guidance for infected wound</td>
<td>Prevent bacterial proliferation&lt;br&gt;Reduce risk of infection in at risk groups - burns, diabetics/immunocompromised, vascular patients. Patients requiring frequent complicated dressing changes. Patients with resistant organisms that cannot be isolated.</td>
<td>Silvercel/ Autrauman Ag&lt;br&gt;mod/high exudate Silvercel/ Autrauman Ag&lt;br&gt;low/&lt;br&gt;moderate exudate Silvercel Carboflex - odour control Silvercel/ Autrauman Ag&lt;br&gt;moderate&lt;br&gt;/high exudate</td>
<td>Wound management should be required to control exudate, pain and odour</td>
</tr>
</tbody>
</table>

**INFECTED WOUNDS -** When assessing a wound, check for signs of a spreading infection:-
- pyrexia
- localised heat and swelling around the wound margins
- pain
- wound bed friable (delicate)
Also pus, green slough and offensive odour may be present

If the wound shows these features, it is advisable to take a swab and send it to the lab for culture. Systemic antibiotics may be required. A wound may be heavily colonised without evidence of a spreading infection.

**COLONISED (2)**

Organisms present but not multiplying

Multiplication of organisms with no host infection

<table>
<thead>
<tr>
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<th>Treatment Options</th>
<th>Other Considerations</th>
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<td>Treatment Options</td>
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<td>----------------------</td>
<td>--------------------------------------------------------------------------------------</td>
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<td>-----------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **CRITICALLY COLONISED (3)** | • Indolent wounds  
• Delay of healing  
• Lack of response to appropriate therapy | Reduce Bacterial Load   | Inadine - low exudate  
Carboflex - odour control  
Silvercel/ Autrauman Ag high exudate | Infected wounds must be observed DAILY during the initial period of infection so that improvement/deterioration can be detected and monitored. As infection subsides, monitoring may be reduced in line with the wound management plan |
| **INFECTED (4)**     | Clinical signs of Infection:  
Pain around wound  
Erythema  
Pus  
Odour - unpleasant ↑ in exudate  
If signs present, follow up with wound swab | Treat infection  
Relieve symptoms i.e. malodour ↓ pain ↓ exudate | Inadine - low exudate  
Carboflex - odour control  
Silvercel/ Autrauman Ag high exudate | First line treatment for clinically infected wounds must be systemic A/Bs |
## Malodorous Wound

<table>
<thead>
<tr>
<th>Wound Type</th>
<th>Description</th>
<th>Aims</th>
<th>Dressings</th>
<th>Other Considerations</th>
</tr>
</thead>
</table>
| Malodorous Wound | Wound which has an offensive change in odour may indicate infection or colonization of bacteria | - Reduce bacterial burden  
- Debride  
- Promote dignity and patient comfort  
- Reduce / contain odour | - Silvercel/Autrauman Ag infection  
- Iodine  
- Silvercel/Autrauman Ag  
- Carboflex - charcoal for odour | Swab and identify organism and treat with antibiotics where appropriate.  
Carboflex is the dressing of choice for odour alone.  
The odour from wounds is most commonly caused by the presence of infection and devitalised tissue. Therefore it is important to eradicate infection.  
- Patient support  
- Surgical debridement  
- Autolytic debridement  
- Larval therapy  
- Oral metronidazole |
<table>
<thead>
<tr>
<th>Wound Type</th>
<th>Description</th>
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<th>Dressings</th>
<th>Other Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulceration and growth of a malignant growth</td>
<td>- Reduce odour</td>
<td></td>
<td>Metrotop Gel</td>
<td>Body image</td>
</tr>
<tr>
<td></td>
<td>- Manage exudate</td>
<td></td>
<td>Carboflex for Malodor</td>
<td>Pain</td>
</tr>
<tr>
<td></td>
<td>- Reduce discomfort/pain</td>
<td></td>
<td>Silvercel/Autrauman Ag</td>
<td>Palliative support</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Foam Dressing / eg</td>
<td>Reassurance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Allevyn Adhesive</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mepilex Bordered</td>
<td></td>
</tr>
<tr>
<td>Wound Type</td>
<td>Description</td>
<td>Management Aims</td>
<td>Dressings</td>
<td>Considerations</td>
</tr>
<tr>
<td>------------</td>
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</tr>
</tbody>
</table>
| **FISTULA** | Abnormal track between two epithelised surfaces that connects one viscerato another or to the bodily surface | - free drainage of exudate  
- prevent infection  
- removal of necrosis slough  
- promote granulation | **Low exudate**  
- aquaform  
- comfeel plus | Only pack a wound if extent of fistula can be determined. Examination of fluid will help to determine the source of the fistula e.g: brown faecal fluid from bowel |
| **SINUS** | Discharging blind ended tract that extends from the surface of an organ to an underlying area or abscess cavity. May be caused by infection, liquifaction or a foreign body | - free drainage exudate  
- protect surrounding skin  
- prevent infection  
- remove necrotic or sloughy material  
- promote granulation from the base of the wound | **Low exudate**  
- aquaform  
- comfeel plus | **High exudate**  
- aquacel ribbon  
(see considerations)  
- allevyn or  
- allevyn adhesive  
- Eakin Wound Management bag (Ring TVN 1928) | Sinus often ends in an abscess cavity which contains foreign material. This needs to be removed and healing promoted or the sinus will become chronic |

Other considerations:  
- nutrition  
- pain  
- surgical intervention  
- regular assessment  
- sinogram
<table>
<thead>
<tr>
<th>Wound Type</th>
<th>Description</th>
<th>Aims</th>
<th>Dressings</th>
<th>Other Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dehiscence</td>
<td>Dehiscence occurs following surgery when the sutures/staples are unable to hold the wound together</td>
<td>Manage exudate</td>
<td>Dependent on size and level of exudate</td>
<td>VAC/Larval therapy</td>
</tr>
<tr>
<td></td>
<td>Wound healing by primary tension ruptures</td>
<td>Debride</td>
<td>Min exudate - Hydrogel Comfeel Plus</td>
<td>Pain control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Promote granulation</td>
<td>Mod exudate - Allevyn Adhesive Mepilex bordered</td>
<td>Correction of infection/ malnutrition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduce risk of infection</td>
<td>Heavy exudate - Aquacel Allevyn Adhesive</td>
<td>Inform senior member of surgical team</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Large Cavity - wound management pouch (Ring TVN 1928)</td>
<td></td>
</tr>
<tr>
<td>Wound Type</td>
<td>Description</td>
<td>Aims</td>
<td>Dressings</td>
<td>Investigations/Observations</td>
</tr>
<tr>
<td>------------</td>
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</tr>
</tbody>
</table>
| Cellulitis | Cellulitis is the inflammation of the connective tissue between adjacent tissues and organs. Commonly caused by bacterial infections. Usually requires antibiotic therapy to prevent spread of infection to the blood stream. Presenting features: red hot painful skin which spreads to adjacent tissues. Other possible presenting features: Open - infected wound, Blisters/raised lumpy areas on skin, Exudate - varying levels, Swelling/oedema, Pyrexia. | - Find causative organism of infection  
- Pain control  
- Management of blisters. May require debriding if burst  
- Manage oedema/swelling  
- Decreased risk of further skin breakdown due to maceration  
- Manage exudate  
- Promote granulation and reepithelialization | - Cavilon/50/50 soft white paraffin to surrounding unbroken or dry skin  
- Exudate management  
- Pain control  
- Management of blisters. May require debriding if burst  
- Manage oedema/swelling  
- Decreased risk of further skin breakdown due to maceration  
- Manage exudate  
- Promote granulation and reepithelialization | Swab wound for culture and sensitivity  
IV Antibiotics review with wound swab report  
Analgesia - monitor effectiveness/side effects  
4 hourly temperature  
4 hourly BM’s if diabetic  
Mark out perimeter of cellulitis and date line and review daily  
If require further advice contact specialist dermatology nurse |
Diabetic Foot Ulcer

Before commencing a dressing regime, assessment of aetiology is essential. Diabetic foot ulcers can be divided into 2 entities:

1. NEUROPATHIC
2. NEUROISCHAEMIC

It is crucial that you identify the aetiology of an ulcer prior to dressing, as treatment regimes will differ according to ulcer type.

Below are some indicators which may assist in identifying if an ulcer is Neuropathic or Neuroischaemic.

**Neuropathic Ulcer**
- Foot warm, dry & painless
- Pulses palpable
- Painless
- Surrounding callus
- Weight bearing surface - 1st mpjt, apices/dorsum of toes, ID areas & heel
- Punched out appearance, often involving deep tissues & bone

**Neuroischaemic Ulcer**
- Foot may be cold
- Pulses absent
- Painful
- Callus absent
- Margins of the foot - med aspect 1st toe/mpjt, lat aspect 5th mpjt & heel
- Area of necrosis, often surrounded by rim of erythema

(Foster & Edmonds 1994)
## Neuropathic Diabetic Ulcer

<table>
<thead>
<tr>
<th>Type</th>
<th>Low exudate</th>
<th>Medium exudate</th>
<th>High exudate</th>
<th>Other Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granulating With Cavity</td>
<td>Aquaform NA ultra</td>
<td>Aquaform Mepilex Bordered</td>
<td>Aquaform Allevyn Adhesive/ Mepilex Bordered</td>
<td>- Hb A1C and blood glucose control</td>
</tr>
<tr>
<td>Granulating No Cavity</td>
<td>Atrauman NA ultra</td>
<td>Aquaform Mepilex Bordered</td>
<td>- referral to diabetic foot clinic if callus evident</td>
<td>- evidence of infection or osteomyelitis</td>
</tr>
<tr>
<td>Sloughy With Cavity</td>
<td>Aquaform</td>
<td>Silvercel/Autrauman Ag Aquaform Allevyn/Mepilex Bordered</td>
<td>- feet should be inspected daily for changes</td>
<td>- daily dressings</td>
</tr>
<tr>
<td>Sloughy No Cavity</td>
<td>Aquaform</td>
<td>Aquaform Allevyn Adhesive/ Mepilex Bordered</td>
<td>- referral to tissue viability nurse if in doubt</td>
<td>- referral for pressure relieving foot wear</td>
</tr>
<tr>
<td>Epithelialising With Cavity</td>
<td>Aquaform</td>
<td>Aquaform Allevyn Adhesive/ Mepilex Bordered</td>
<td>N/A</td>
<td>- pain control</td>
</tr>
<tr>
<td>Epithelialising No Cavity</td>
<td>Mepitel Atrauman</td>
<td>Allevyn Allevyn Adhesive/ Mepilex Bordered</td>
<td>N/A</td>
<td>- podiatry referral</td>
</tr>
<tr>
<td>Infected Swab/Antibiotics With Cavity</td>
<td>Silvercel/Autrauman Ag Allevyn Adhesive/ Mepilex Bordered</td>
<td>Silvercel/Autrauman Ag Allevyn Adhesive/ Mepilex Bordered</td>
<td>Silvercel/Autrauman Ag Allevyn Adhesive/ Mepilex Bordered</td>
<td>- non weight bearing</td>
</tr>
<tr>
<td>Infected Swab/Antibiotics No Cavity</td>
<td>Silvercel/Autrauman Ag Allevyn/Mepilex Bordered</td>
<td>Silvercel/Autrauman Ag Allevyn Adhesive/ Mepilex Bordered</td>
<td>Silvercel/Autrauman Ag Allevyn Adhesive/ Mepilex Bordered</td>
<td>- physio</td>
</tr>
</tbody>
</table>
Neuroischaemic Ulcers

Neuroischaemic ulcers have typical signs and symptoms:

- Pulses Absent
- Foot may be cold
- History of intermittent claudication (pain in calf)
- Painful
- No callus
- Area of Necrosis, often surrounded by erythema
- Evidence of gangrene

**TREATMENT**

- Refer patient to tissue viability for dopplers
- **DO NOT DEBRIDE**
- Apply non adhesive dressings if low exudate eg: atrauman
- If area gangrenous check and refer to tissue viability
- Wet gangrene dress with aquacel ribbon/Lyofoam
- Dry gangrene N/A dressing. Keep dry, if appropriate leave exposed

**OBJECTIVES**

- To establish level of ischaemia
- Refer to Vascular Specialist
- May cause further damage and failure to heal
- Prevent further tissue damage
- Keep area as dry as possible to prevent spread
- Swab/Antibiotic therapy if infection evident
- Contain infection
Other Considerations = Osteomyelitis

Criteria for Osteomyelitis:

Establish whether ulcer is deep or tissue or bone involvement.

Ulcer present or history of ulcer AND:

- Cellulitis
- Probing to bone
- Positive bacteriological culture from deep tissue
- Radiological and/or scintigraphic signs compatible with osteitis
- Histological diagnosis

Tissue Involvement:

- Partial thickness
- Full thickness
- Joint capsule, tendon
- Bone, open joint

If either above are present or suspected start antibiotics and do the following:

- X-Ray
- Arrange next appointment for 1-2 weeks to review x-ray.
- If x-ray does not confirm Osteomyelitis or shows Osteitis a bone scan and an Indium Labelled White Cell Scan will usually need to be arranged.

Refer to trusts Antibiotic policy folder for treatments.
Diabetic Ulcer

Do a wound swab if there are clinical signs of infection (usually look for presence of 2 signs of infection):

● Redness
● Pain
● Exudation of pain
● Heat swelling
● Lymphangitis
● Fever & other systematic signs
● Foul smell
● Gas
● Induration

If patient is already on antibiotic cover review & decide if they should continue, stop, or be changed.

REFERRALS:

**ISCHAEMIA** - If patient has clinical signs & symptoms (atrophy of skin, absence of hair, pallor, dark colour), absent pulses / monophasic, claudication, cool / cold limb, ischaemic rest pain or a non-healing ulcer referral to vascular surgeons should be considered. Refer to vascular consultant by letter if routine or if case is urgent immediate referral should be made by telephone to the vascular registrar on call.

**DERMATOLOGY** - If patient has a dermatological problem refer to consultant dermatologist at Whiston or St Helens hospital.

**SURGERY** - Patients requiring surgical debridement / amputation should be referred to the general surgeons and admitted.

**DIABETES NURSE SPECIALIST** - If patient needs review by DNS for poor glycaemic control, the nurse covering the clinic should be informed.

**TISSUE VIABILITY NURSE SPECIALIST** - If patient requires Comprehensive Assessment and investigations.
**Burns**

**Picture**

**Facial Burn**

**Superficial Burn**

**Aims**

- To give appropriate first aid to remove heat or chemical from skin.
- To promote re-epithelialization of skin and decrease risk of infection.

**Description**

A heat injury to the skin involving damage to the epidermis and possibly part of but not completely through dermis.

**Dressing Regime**

- Cleanse wounds with SALINE only.
- Pay particular attention to eyes. Seek advice on burns unit.
- Once face dry, apply aquaf orm gel to eschar.
- Apply yellow paraffin to protect lips.

**Burns**

- To give appropriate first aid to remove heat or chemical from skin.
- To promote re-epithelialization of skin and decrease risk of infection.

**Pictures**

- Burns

**Other Considerations**

- Will require high factor sunscreen.
- Consider need for psychological support.
- Nurse sitting upright to decrease facial swelling.
- Warn patient/relatives about expected swelling.
- Avoid shaving in men until healed.
- Consider need for airway support/O₂ therapy.
- Consider need for ophthalmic referral.
- Pay particular attention to eyes. Seek advice on burns unit.

**Once Healed**

- Apply unperfumed moisturizer and protect from exposure to direct sunlight.
- Consider need for psychological support.
<table>
<thead>
<tr>
<th>Picture</th>
<th>Description</th>
<th>Aims</th>
<th>Dressing Regime</th>
<th>Other Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FULL THICKNESS BURN</strong></td>
<td>A heat injury to the skin extending through epidermin, Dermis possibly into subcutaneous tissue, muscle and bone</td>
<td>- To give appropriate first aid treatment to remove heat or chemical from tissues&lt;br&gt;- To remove dead tissue in preparation for grafting, either by use of dressings or surgery&lt;br&gt;- Decrease risk of infection</td>
<td>SMALL BURN &lt; 5%&lt;br&gt;MEDIUM 5 - 10%&lt;br&gt;LARGE 10 - 15%&lt;br&gt;Dress following consultation with Burn Team&lt;br&gt;Mepitel + Gauze depending on exudate levels&lt;br&gt;If evidence of infection consult burns unit and microbiologist re-appropriate treatment</td>
<td>Refer to Burns Team&lt;br&gt;Adult - Whiston&lt;br&gt;Child - Alder Hey&lt;br&gt;Cleanse as for superficial burns&lt;br&gt;Fluid resuscitation required for patients of:&lt;br&gt;Adult &gt; 15%&lt;br&gt;Child &gt; 10%&lt;br&gt;As with superficial burns consider referral for Nutritional and psychological support&lt;br&gt;Observe circulation for circumferential burns. Consider need for escharotomy. If electrical burn observe for entry and exit points. Monitor heart rhythm 24 hrs and carry out ECG.</td>
</tr>
<tr>
<td>Picture</td>
<td>Description</td>
<td>Aims</td>
<td>Dressing Regime</td>
<td>Other Considerations</td>
</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
<td>SUPERFICIAL BURN</td>
<td>A heat injury to the skin resulting in damage to the epidermis and possibly part of but not completely the dermis</td>
<td>- Give appropriate first aid treatment to remove heat or chemical from the skin. &lt;br&gt; - To promote re-epithelialization and decrease risk of infection.</td>
<td>SMALL BURN&lt;br&gt;less than 5%&lt;br&gt;<strong>Low Exudate</strong>&lt;br&gt;Active Heal Hydrocolloid&lt;br&gt;Autrauman&lt;br&gt;<strong>Medium Exudate</strong>&lt;br&gt;Comfeel Plus&lt;br&gt;Allevyn&lt;br&gt;Adhesive or Mepitel bordered</td>
<td>Cleanse all wounds rinse thoroughly with 1% chlorhexidine solution to decrease risk of infection. &lt;br&gt;<em>USE SALINE TO CLEANSE FACES</em> &lt;br&gt;Observe for clinical signs of infection. Refer to infection protocol if infection suspected. &lt;br&gt;- If after 3 weeks not healed, consider referral to Burns team &lt;br&gt;Adult - Whiston&lt;br&gt;Child - Alder Hey &lt;br&gt;- Consider dietician referral for supplement support &lt;br&gt;- Consider need for psychological support &lt;br&gt;- Ascertain cause and time of burn &lt;br&gt;- If chemical in nature consider burns team referral for specialist advice &lt;br&gt;- Other dressing regimes to be used under instruction of Burns Consultant</td>
</tr>
</tbody>
</table>

**SMALL BURN**  
less than 5%  
**Low Exudate**  
Active Heal Hydrocolloid  
Autrauman  
**Medium Exudate**  
Comfeel Plus  
Allevyn  
Adhesive or Mepitel bordered  

**MEDIUM SIZE BURN**  
Adult 5-15%  
Child 5-9%  
will require fluid replacement. Refer to burns team.  

**LARGE BURN**  
Adult > 15%  
Child > 10%  
Will require fluid resuscitation. Refer to burns team.
<table>
<thead>
<tr>
<th>Picture</th>
<th>Description</th>
<th>Aims</th>
<th>Dressing Regime</th>
<th>Other Considerations</th>
</tr>
</thead>
</table>
| **HAND BURNS** | See Superficial burn | - Give appropriate first aid to remove heat / chemical from burn.  
- To promote re-epithelialization, decrease risk of infection and maintain function. | - **DRESS DAILY**  
Hibidil solution in plastic hand bag.  
When exudate manageable, dress with jelonet / gauze / bandage or netalast.  
Dress fingers individually with minimum amount of dressings.  
If not healed within 3 weeks or any functional problems refer to burns team. | - Cleanse with chlorhexidine 1% as for general burns  
- Deroof any blisters that prevent movement of joints  
- Monitor for clinical signs of infection  
- Elevate hands to decrease oedema and improve movement  
- Encourage patient to move hands as much as possible  
- Consider referral to physiotherapist for exercise regime  
- Consider referral to O.T. for splint to wear at night to maintain hand in functional position |
<p>| <strong>FULL THICKNESS</strong> | | - To decrease risk of infection and prepare wound for possible surgical intervention. | - Refer to burns team | |</p>
<table>
<thead>
<tr>
<th>Picture</th>
<th>Description</th>
<th>Aims</th>
<th>Dressing Regime</th>
<th>Other Considerations</th>
</tr>
</thead>
</table>
| **MIXED DEPTH BURN**  
**SUPERFICIAL DERMAL** | A heat injury to the skin with damage to different levels of the skin both superficial deep layers of the dermis | - To give appropriate first aid treatment to remove heat or chemical from the skin  
- To prevent infection, promote healing / prepare for surgery  
- To manage exudate | As for full thickness burns | Some superficial burns may heal with conservative dressings  
If unhealed at 3 weeks need to refer to burns team. If large area or deep dermal burns refer to burns team initially |

<p>| <strong>DEEP DERMAL</strong> | | | | |</p>
<table>
<thead>
<tr>
<th>Pictures</th>
<th>Description</th>
<th>Aims</th>
<th>Dressings</th>
<th>Dressing Observation</th>
<th>Other Considerations</th>
</tr>
</thead>
</table>
| SHEET GRAFT | A thin piece of skin surgically harvested using a knife or dermatome, consisting of the epidermis and the upper layers of the dermis. | To promote ‘Take’ of skin graft and healing of wound | Small graft  
Primary  
Atrauman  
Secondary  
Allevyn  
Mepilex Bordered  
Medium/Large grafts  
Primary  
Atrauman/Mepitel  
Secondary  
Gauze dressing Bandage | Daily wound check  
Observe for:  
- bleeding  
- signs of infection  
- dressing slipping  
- pain  
Graft site not usually painful  
1st Dressing (usually 5-7 days)  
Observe:  
- % graft take  
- stability of graft  
- colour of graft ie purple, blue, red etc  
- signs of infection ie exudate, inflammation, presence of pus  
- presence of haematoma or seroma under graft. Express if present  
- Trim any overlap of skin if graft stable  
- Remove sutures or staples at 1st dressing | Limb Grafts  
Elevate limb to decrease risk of graft breakdown  
- Mobilize as per doctor’s instructions  
- Lower limb graft requires double crepe bandage toe to knee and tubigrip when mobilizing. Tubigrip should be removed at night. |
| MESHED GRAFT | The skin can be ‘meshed’ using a hard mesher to allow its size to be increased by up to 6 times and allow the exudate at the wound bed to pass through thus not lifting the graft off. | | | | Graft Moisturising  
Moisturise at each dressing, change with sterile liquid paraffin.  
Once healed use an unperfumed moisturiser after first washing graft.  
Obtain discharge information sheet from TVN office.  
Further advice can be obtained from TVN team, Ext. 1928 or out of hours, G4 1520. |
<table>
<thead>
<tr>
<th>Picture</th>
<th>Description</th>
<th>Aims</th>
<th>Dressings</th>
<th>Other Considerations</th>
</tr>
</thead>
</table>
| ![Image](image.png) | Surgically created wound through epidermis and part of the dermis. Looks like a graze. | To promote re-epithelialisation  
- Prevent Infection  
- Exudate Management  
- Pain Management | Atrauman/Mepitel  
Outer gauze dressing gamgee and crepe bandage. | If infection suspected refer to guidelines on wound infection.  
Once healed moisturise twice daily with unperfumed moisturiser, after first washing with mild soap.  
Obtain post op/discharge instructions from TVN office or Ward G4.  
Any further advice can be obtained from TVN Team Extn 1928 or out of hours ward G4 Ext 1520.  
Give prescribed analgesia. Monitor effectiveness/side effects. Pain usually starts to settle at 2-3 days. |

**Routine dressing check**  
Check dressing daily for 'strike through' bleeding, signs of infection and dressing slipping.  
Reduce bulk of dressing after 48 hours.  
1st Dressing  
10-14 days as instructed.  
Remove only if not adhered.  
If adhered apply liquid paraffin to moisturise and review again in 48 hours. |
ADVICE FOLLOWING YOUR DISCHARGE FROM THE MERSEY REGIONAL PLASTIC SURGERY UNIT

HOW TO CARE FOR YOUR DONOR SITE FOLLOWING DISCHARGE

1. If you have a dressing or tapes on your donor site, leave them intact until your next clinic appointment, or until you see your District Nurse.

2. Once your donor site is completely healed, wash gently with unperfumed or mild soap and pat dry. Then massage in unperfumed moisturiser. Do not remove any scabs that may form, allow them to fall off naturally.

3. Keep your donor site out of the sun, or apply total sun block every 1-2 hours, even once fully healed, as this area is delicate and will burn easily. You will need to do this for the next two summers.

4. Avoid any clothing that is going to rub on your donor site. If necessary, apply a light layer of padding to protect this area.

5. If you feel that your donor site has deteriorated, if it has become more painful, starts to bleed or ooze a lot, or the dressing comes off, or it develops a green offensive discharge, please contact the ward on the number below.

Ward ........................................ Tel. No ...............................................

Mersey Regional Plastic Surgery Unit

How to care for your donor site following discharge.

Discharge advice received.

Patient/relative signature: ..........................................................................................................................

Date: ...........................................................................
<table>
<thead>
<tr>
<th>Type</th>
<th>Indicator/Descriptor</th>
<th>Management Aims</th>
<th>Treatment Options</th>
<th>Other Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYPERTROPHIC</td>
<td>Red/dark, raised scar within the boundary of the original wound.</td>
<td>To flatten and fade scar, and to improve mobility over a joint</td>
<td>Mepiform</td>
<td>- Medical treatments eg: laser surgery, steroid injection, dermabrasion, cryotherapy</td>
</tr>
<tr>
<td></td>
<td>Typical causes: Following any injury. It is believed that these scars are the result of an imbalance in the production of collagen in a healing wound. They are more common in the young and people with darker skin.</td>
<td>These tend to resolve after 18 months</td>
<td>Cica Care Otoforin Compression garment</td>
<td>- Refer to Occupational Therapist: Janet Hunter</td>
</tr>
<tr>
<td>KELOID</td>
<td>Red/dark, raised scar which can continue to grow outside boundary of the original wound.</td>
<td>To flatten and fade scar, and to improve mobility over a joint</td>
<td>Mepiform</td>
<td>- Self treatment by the patient, purchased from pharmacies</td>
</tr>
<tr>
<td></td>
<td>Typical causes: Following any injury. It is believed that these are the result of an imbalance in the production of collagen in a healing wound. They grow beyond the boundary of the original wound and can continue to grow indefinitely.</td>
<td></td>
<td>Cica Care Otoforin Compression garment</td>
<td>- Psychological impact of scarring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Cosmetic camouflage: Alison Burrows</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Counselling</td>
</tr>
</tbody>
</table>
### Wound Type and Description

<table>
<thead>
<tr>
<th>Superficial Skin Laceration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong> breach or split in the skin caused by blunt instrument or force (e.g., result of fall)</td>
</tr>
</tbody>
</table>
| **Initial aims include:**
  - Debridement of any foreign material
  - Loosely align skin edges with wound closure strips leaving gaps to allow exudate drainage, promote healing; provide optimal environment for healing |
| **General aims include:**
  - Manage characteristics of wound
  - Prevent infection
  - Manage exudate
  - Acceptable cosmetic outcome |

<table>
<thead>
<tr>
<th>Skin Laceration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong> partial or full thickness wound involving loss of some or all affected tissue.</td>
</tr>
</tbody>
</table>
| Depending on mechanism of injury, refer to A&E e.g., crush injuries need to be observed for signs of compartment syndrome, where an impact causes bleeding within a closed anatomical space causing swelling with subsequent compromise of circulation and tissue function, which can lead to irreversible nerve damage or tissue necrosis within hours of injury. Particularly common in the compartment of lower leg and forearm. Signs include: pain, swelling, numbness, loss of peripheral pulse, contracture. Also refer to A&E if:
  - Indications of bone involvement
  - Indications of full thickness laceration exposing deeper lying structures
  - Lower limb looks discoloured and capillary refill is reduced
  - Indication of change in sensation to lower limb |

### Management Aims

- Debridement of any foreign material
- Loosely align skin edges with wound closure strips leaving gaps to allow exudate drainage, promote healing; provide optimal environment for healing
- Manage characteristics of wound
- Prevent infection
- Manage exudate
- Acceptable cosmetic outcome

### Dressings

**Low Exudate:**
- Wound closure strips
- Low adherent dressing

**Moderate Exudate:**
- Aquacel
- Allevyn/Mepilex

**High Exudate:**
- Foam
- Secure with light retention bandage, bandage toe to knee

### Other Considerations

- Dressings will depend on skin fragility
- Note: pre-tibial lacerations often result in haematoma formation.
- Haematomas can cause tissue necrosis and may need assessment in Walk-In-Centre/A&E for evacuation of haematoma formation
- If lower limb laceration does not heal within 6 weeks perform leg ulcer assessment

### After care advice:
- Elevate legs, rest, steristrip management (keep dry, leave in situ until wound review)
<table>
<thead>
<tr>
<th>Picture</th>
<th>Description</th>
<th>Aims</th>
<th>Dressings</th>
<th>Other Considerations</th>
</tr>
</thead>
</table>
| ![Wound Image](image.png) | A surgically created clean wound, edges brought together and held in place with sutures or staples | - Prevent infection  
- Protect against trauma of clothing etc  
- Provide optimal wound healing environment  
- Manage serous exudate leakage | **Min exudate**  
Tegaderm | If wound bed is delicate, non adhesive dressing may be required eg: Mepitel Atrauman, NA ultra |
|         |             |      | **Mod exudate**  
Tegaderm and Pad  
Mepore and Pad |                                      |
### PEG Site Care

<table>
<thead>
<tr>
<th>Description</th>
<th>Aims</th>
<th>Treatment</th>
<th>Other Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percutaneous Endoscopic Gastrostomy Tube (PEG), which enters directly into the stomach. 2 types: • those that can be removed by traction without endoscopy (CORFLO - Merck) • those that can be removed only by endoscopy (FREKA - Fresenius)</td>
<td>Maintain skin integrity around PEG site and minimise risk of infection</td>
<td>The tube should be turned a full daily, to help formation of stoma and make cleaning easier. Ensure the tube moves freely in and out of the stoma. This will help to prevent the bumper becoming buried. Daily cleaning routine Slide fixator away from stoma Clean stoma site with water (use sterile saline 0.9% for 48 hours, then tap water may be used) and gauze, ensuring the skin is dry Remove any debris and crusting around stoma site and fixator The stoma site should not usually need a dressing; Cavilon may be applied to prevent excoriation of the surrounding skin If the exudate is excessive apply a foam dressing, may need twice daily dressings Gently pull the tube towards until you feel resistance before putting the fixator back into place Return the fixator snug to the skin If it is applied too tight, skin necrosis may result, if it is applied too loose, hypergranulation may develop</td>
<td>Patients are advised to shower while stoma is healing (10-14 days); after that the patient may bathe as normal (ensuring both ends of tube are closed) and the area must be thoroughly dried afterwards. Observe for any swelling, redness, inflammation – infection may be present - refer to infected wounds</td>
</tr>
</tbody>
</table>


**PROCEDURE FOR GENERAL SKIN CARE**

**AIM**  
Maintain and promote skin’s mechanical integrity.

**SUPPORTING INFORMATION**  
Skin care means preserving the integrity of the outer layer of the skin (stratum carneum), while removing sebum and soiling and maintaining adequate moisturisation.

**PERFORMED BY**  
Nursing staff (all bands)

**EQUIPMENT**  
- Non-sterile vinyl gloves
- Bowl of warm water (36º C or below)
- Soap/foam wash
- Disposable wipes
- Clinical waste bag
- Plastic apron
- Barrier cream (if appropriate)

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Explain procedure to patient</td>
</tr>
<tr>
<td>2</td>
<td>Wash and dry hands</td>
</tr>
<tr>
<td>3</td>
<td>Put on gloves (non sterile vinyl)</td>
</tr>
<tr>
<td>4</td>
<td>Remove soiled garments and position patient to expose area to be cleaned.</td>
</tr>
<tr>
<td>5</td>
<td>Cleanse/wash gently soiled area with mild soap or foam wash (ph neutral to 5.5)</td>
</tr>
<tr>
<td>6</td>
<td>Rinse well and gently dry thoroughly</td>
</tr>
<tr>
<td>7</td>
<td>Observe for any changes in skin physiology/integrity. Skin changes should be documented/recorded immediately.</td>
</tr>
<tr>
<td>8</td>
<td>Apply barrier cream (50% cavillon 50% white paraffin) very sparingly to intact skin of incontinent patients.</td>
</tr>
<tr>
<td>9</td>
<td>Remove gloves &amp; dispose of soiled items.</td>
</tr>
<tr>
<td>ACTION</td>
<td>RATIONALE</td>
</tr>
<tr>
<td>--------</td>
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</tr>
<tr>
<td>10</td>
<td>Do not use talc</td>
</tr>
<tr>
<td>11</td>
<td>Do not massage creams into skin</td>
</tr>
<tr>
<td>12</td>
<td>Inspect skin regularly</td>
</tr>
<tr>
<td>13</td>
<td>Remove T.E.D. stockings daily &amp; inspect skin condition.</td>
</tr>
<tr>
<td>14</td>
<td>Assess requirements for continence aids &amp; contact Continence Advisor where necessary.</td>
</tr>
<tr>
<td>15</td>
<td>Document all skin care interventions</td>
</tr>
</tbody>
</table>

**References**

National Institute of Clinical Excellence NICE (2001)


PROCEDURE FOR THE MANAGEMENT OF PRESSURE ULCERS

AIM
The prevention of further tissue damage through effective wound care management which promotes moist wound healing and skin integrity.

EXPLANATORY NOTES
Definition of pressure ulcer: A pressure ulcer is localised injury to the skin and/or underlying tissue usually over a bony prominence as a result of pressure, or pressure in combination with shear and/or friction (NPUAP 2007).

PERFORMED BY
This procedure must be performed by a registered nurse or a student nurse under the supervision of a registered nurse.
Assistant practitioners may undertake this procedure having been deemed competent by a registered nurse following a period of training, supervision and competency assessment.

EQUIPMENT
Medley Risk Assessment Tool (SKL B10)
Wound Assessment Chart (SHK HN 134)
Wound Care Formulary Folder
Notification of Pressure Ulcer Form (SHK HN 138)
Repositioning Chart (SHK HN 239)
Pressure Ulcer Management Core Care Plan (SHK HN 229)
Equipment Pool Catalogue
Preventing Pressure Ulcers: A guide for patients and carers (SHK HN 233)

Procedure

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 On identification of tissue damage, a full holistic Wound Assessment chart (SHKHN134) should be completed, including wound dimensions, grade classification and note of where the ulcer developed i.e. Home, Hospital, Other.</td>
<td>To maintain accurate records and use as a baseline from which to measure patient outcomes.</td>
</tr>
<tr>
<td>2 Complete a Trust Pressure Ulcer Incident form (SHKHN138) and send to the Tissue Viability Specialist Nurse</td>
<td>To maintain accurate incidence details. To monitor effective use of pressure relieving equipment.</td>
</tr>
<tr>
<td>3 All patients must be risk assessed using the Trust’s pressure ulcer risk assessment tool (Medley Score) as per Trust Risk Assessment Policy. An appropriate pressure relieving/reducing device must be obtained from the Equipment Pool for use both in &amp; out of bed.</td>
<td>To prevent further tissue damage and provide adequate reduction in interface pressures.</td>
</tr>
<tr>
<td>ACTION</td>
<td>RATIONALE</td>
</tr>
<tr>
<td>--------</td>
<td>-----------</td>
</tr>
<tr>
<td><strong>4</strong></td>
<td>A repositioning schedule should be commenced for patients who are unable to reposition themselves at least every 2 hours &amp; evaluated with regards to skin integrity and inspection findings. This should be documented on the repositioning chart (SHK HN232)</td>
</tr>
<tr>
<td><strong>5</strong></td>
<td>Chair sitting should be restricted to periods of 2 hours or less at any one time.</td>
</tr>
<tr>
<td><strong>6</strong></td>
<td>All patients with a pressure ulcer should have an appropriate plan of care developed, implemented and regularly evaluated. The care plan should take into consideration all intrinsic/extrinsic factors i.e. Nutritional needs.</td>
</tr>
<tr>
<td><strong>7</strong></td>
<td>All members of the multi-disciplinary team, carers, relatives and the patients themselves should be informed on identification of the incidence/development of a pressure ulcer. Make available to patients a copy of the booklet “Preventing pressure ulcers: A guide for patients and carers” (SHK HN233).</td>
</tr>
<tr>
<td><strong>8</strong></td>
<td>Using the Trust’s Wound Care Formulary and Dressing Selection Guide identify the most appropriate dressing regime. Record/monitor effectiveness in the patient care plan and on the Wound Assessment chart (SHKHN134).</td>
</tr>
<tr>
<td><strong>9</strong></td>
<td>Ensure re-assessment of pressure ulcer status at each dressing change and document on wound assessment chart. (SHKHN134).</td>
</tr>
<tr>
<td>ACTION</td>
<td>RATIONALE</td>
</tr>
<tr>
<td>--------</td>
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</tr>
<tr>
<td>10 Re-assess and document Medley score at least three times per week and upon significant change in patient’s condition, and as instructed in the Trust Risk Assessment Policy.</td>
<td>Risk Assessment should be an ongoing process throughout an individual’s episode of care, regardless of setting. Any changes in risk status identified should be documented and appropriate pressure relieving/reducing interventions employed to prevent new or increase in existing tissue damage.</td>
</tr>
<tr>
<td>11 Manual Handling practices employed must avoid friction and shearing forces. Complete a Manual Handling assessment as per policy.</td>
<td>Manual Handling practices should be used correctly in order to minimise shear and friction damage. Refer to Equipment Pool catalogue for guidance on equipment e.g. electric profiling beds, sliding sheets, hoists, stand aids.</td>
</tr>
<tr>
<td>12 Referrals for Tissue Viability Specialist Nurse opinion should be sought where necessary on EXT 1928/2624 or bleep numbers 1928 and 0021. Referral date/time should be documented in the patient’s communication sheet.</td>
<td>An integrated multidisciplinary approach to pressure ulcer prevention should be encouraged as it facilitates better patient outcomes.</td>
</tr>
<tr>
<td>13 Discharge planning must be commenced as soon possible &amp; referrals required for continuing care upon discharge initiated &amp; documented.</td>
<td>Co-ordinating discharge plans early in the patient’s episode of care will promote continuity &amp; prevent discharge delays.</td>
</tr>
</tbody>
</table>

**References**


National pressure ulcer advisory panel 2007. [www.npuap.org/pr2.htm](http://www.npuap.org/pr2.htm)
ST HELENS & KNOWSLEY HOSPITALS TRUST
POLICY FOR THE MANAGEMENT OF PRESSURE ULCERS

AIM
The prevention of further tissue damage through effective wound care management, which promotes wound healing and skin integrity.

PRE-REQUISITES
Medley Risk Assessment Tool (SHK B10)
Wound Assessment Chart (SHK HN134)
Wound Care Formulary
IR1 Form
Pressure relieving/reducing product selection guide
Repositioning Chart (SHK HN232)
Pressure Ulcer Management Core Care Plan (SHK HN 229)

IMPLEMENTATION

1. On identification of tissue damage, a full holistic wound assessment chart (SHK HN 134) should be completed, including wound dimensions, grade and classification. All pressure sores should be photographed by Medical Photography.

2. All patients with a pressure ulcer should be nursed on the appropriate pressure relieving/reducing device whilst nursed both in and out of bed.

3. A repositioning schedule should be commenced/recorded (where appropriate) and evaluated regards skin integrity and inspection findings.

4. Chair seating should be restricted to periods of 2 hours and less.

5. An IR1 form must be completed and sent to the Tissue Viability Nurse for all patients admitted with a pressure ulcer (SHK HN164).

6. A comprehensive and holistic patient assessment must be completed and an appropriate plan of care developed/implemented and evaluated at regular intervals.

7. All members of the multi-disciplinary team, carers and relatives and the patients themselves should be informed on identification of the incidence/development of a pressure ulcer.

8. Using the Trust’s Wound Care Formulary and Dressing Selection Guide, identify the most appropriate dressing regime and record/monitor effectiveness in the patients care plan and wound assessment chart.

9. Re assess and document Medley scores at least three times a week or upon significant changes in-patients medical condition.

10. Manual handling practices employed must avoid friction and shearing forces.

11. Referrals for specialist opinion should be sought where necessary and documented.

12. Discharge planning must be commenced as soon as possible and referrals required for continuity of care upon discharge initiated and documented.
PRESSURE ULCER MANAGEMENT

PATIENT’S NAME: \[\text{MEDLEY SCORE:}\]

PROBLEM/NEED \[\text{EXPECTED OUTCOME}\]

The patient has a pressure ulcer \[\text{To encourage wound healing}\]

- Photograph Wound - Contact Medical Photography

1. Carry out a risk assessment at least three times a week or when there is a change in the patient’s condition.
2. Ensure appropriate pressure relieving/reducing products are employed including mattress and cushion and record product utilised.
3. Restrict chair seating to two hours or less.
4. Ensure regular repositioning.
5. Complete IR1 form and return to the Tissues Viability Nurse.
6. Complete wound assessment chart (SHK HN 134) including location, dimensions, grade and classification.
7. Develop and record appropriate individualised dressing regime for the patient, utilising the Trust’s wound management poster and guidelines.
8. Inform relevant members of the multi disciplinary team, Medical Doctors and Dieticians etc.
9. Reassess wound at dressing change and document wound progress.
10. Reassess appropriate measures and equipment is in place prior to transfer and discharge.
PROCEDURE FOR THE PREVENTION OF PRESSURE SORES

**AIM**
All patients will be risk assessed so to identify at risk patients. Upon risk - pressure sore prevention strategies will be employed.

**SUPPORTING INFORMATION**
It is important that vulnerable patients are recognised at an early stage in order to maintain skin integrity. Therefore any assessment must be consistent and thorough in order to identify patients who are most likely to be at risk of developing pressure sores.

**PERFORMED BY**
This procedure must be performed by a registered nurse or a student nurse under the supervision of a Registered Nurse.

**EQUIPMENT**
- Medley Risk Assessment Tool (SHK B10)
- Wound Assessment Chart (SHK HN 134)
- Wound Care Formulary
- Notification of Pressure Sore Form (SHK HN 164)
- Pressure Relieving/Reducing Product Selection Chart (SHK HN 232)
- Repositioning Chart (SHK HN 232)
- Pressure Sore Prevention Core Care Plan (SHK HN 230)

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>All patients who are admitted must be holistically assessed using the medley score within 6 hours of admission to all areas, including Accident &amp; Emergency, and Assessment Units. To identify at risk patients &amp; to promote skin integrity, utilising formal and informal assessment procedures.</td>
</tr>
<tr>
<td>2</td>
<td>A comprehensive pressure sore prevention core care plan (SHK HN 230) must be devised for all patients with a medley score of 10 or more. Care plans should highlight both intrinsic &amp; extrinsic factors which need to be addressed and evaluated in order to maintain optional, skin integrity.</td>
</tr>
<tr>
<td>3</td>
<td>All risk assessments must be recorded &amp; re-evaluated 3 times weekly or upon any significant changes in the patient’s medical status. To ensure optional patient outcomes &amp; measure standards of practice. Maintaining comprehensive documentation in risk status allows early interventions to be employed.</td>
</tr>
<tr>
<td>4</td>
<td>All members of the multi-disciplinary team, carers &amp; relatives &amp; the patients themselves should be informed in the patient(s) are admitted with a pressure sore. All patients have the right to be informed of any complications encountered e.g. pressure sores. Further informed patients can assist in promoting skin integrity.</td>
</tr>
</tbody>
</table>
Adopting the Trust’s pressure relieving/reducing product selection guide, the most appropriate devices should be identified, if a pressure sore relieving device is to be utilised.

Documentation must be maintained, identifying & evaluating the effectiveness of all preventative strategies employed.

A Pressure sore notification form must be completed & sent to the Tissue Viability Nurse, for all patients admitted with a pressure sore (SHK HN 164).

Individuals who are considered at risk of developing a pressure sore should have chair seating restricted to 2 hours or less & be provided with a pressure reducing cushion.

Where appropriate re-positioning schedule (SHK HN 232) should be commenced/evaluated & documented for each person at risk.

Manual handling practices employed must avoid friction & shearing.

Referrals for specialist opinion should be sought were necessary & documented.

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<td>A Pressure sore notification form must be completed &amp; sent to the Tissue Viability Nurse, for all patients admitted with a pressure sore (SHK HN 164).</td>
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<td>10</td>
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<td>11</td>
<td>Referrals for specialist opinion should be sought were necessary &amp; documented.</td>
</tr>
</tbody>
</table>

References
Pressure Ulcer Prevention - Pressure ulcer risk assessment and prevention, including the use of pressure-relieving devices, (beds, mattresses and overlays) for the prevention of pressure ulcer in primary and secondary care. NICE (2003).
ST HELENS & KNOWSLEY HOSPITALS TRUST
POLICY FOR THE PREVENTION OF PRESSURE ULCERS

AIM

PRE-REQUISITES
Medley Risk Assessment Tool (SHK B10)
Wound Assessment Chart (SHK HN134)
Wound Care Formulary
IR1 Form
Pressure relieving/reducing product selection chart (SHK HN 232)
Repositioning Chart (SHK HN 232)
Pressure Ulcer Prevention Core Care Plan (SHK HN 230)

IMPLEMENTATION

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<td>2</td>
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<td>4</td>
<td>All members of the multi-disciplinary team, carers and relatives and the patients themselves should be informed of patient(s) who are admitted with a pressure ulcer.</td>
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<tr>
<td>5</td>
<td>Adopting the Trust’s pressure relieving/reducing product selection guide, the most appropriate devices should be identified and utilised.</td>
</tr>
<tr>
<td>6</td>
<td>Documentation must be maintained, identifying and effectiveness of all preventative strategies employed.</td>
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<td>An IR1 form must be completed and sent to the Tissue Viability Nurse, for all patient admitted with a pressure ulcer.</td>
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<td>8</td>
<td>Individuals who are considered at risk of developing a pressure ulcer should have chair seating restricted to 2 hours or less and be provided with a pressure-reducing cushion.</td>
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<td>9</td>
<td>Where appropriate a repositioning schedule (SHK HN 232) should be commences/evaluated and documented for each person at risk.</td>
</tr>
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</table>
# CORE CARE PLAN

## PRESSURE ULCER PREVENTION

### PATIENT’S NAME:  
### MEDLEY SCORE: 
### PROBLEM/NEED: 
### EXPECTED OUTCOME: 

The patient is at risk of developing a pressure ulcer (Medley above 10)

1. Carry out a risk assessment at the initial point of contact and at least three times a week or when there is a change in the patient’s medical condition.
2. Monitor and document the condition of the patient’s pressure areas every .................
3. Educate the patient of the risk factors, which will encourage pressure ulcer development, eg. Pressure, friction and shearing.
4. Promote patient mobility, providing encouragement and assistance as required.
5. Teach and encourage the patient to shift their body weight every 15 minutes whilst in bed and seated.
6. Any skin changes should be recorded/acted on and documented.
7. Use an appropriate pressure relieving/reducing cushion and mattress in accordance with the Trust’s recommended aids for pressure ulcer prevention.
8. Ensure regular repositioning.
9. Restrict time seated to periods of two hours or less.
10. Inspect the patient’s skin and ensure it is clean, dry and moisturised.
11. Establish a programme to manage incontinence if this is a problem.
12. Provide and encourage a well-balanced, high protein diet with adequate fluid intake.
13. Refer to appropriate members of the multi disciplinary team where appropriate, eg. Dietician.
14. Avoid shearing forces when moving and handling the patient.
PROCEDURE FOR ASEPTIC TECHNIQUE

Definition
Asepsis is the absence of infectious micro-organisms in living tissues. Aseptic technique is used to prevent contamination of susceptible sites, e.g. wounds, to prevent the spread of infection to or from a wound.

The usual means of cross infection include:-
• Hands of staff involved
• Equipment shared between patients
• Clothing
• Patient’s hands
• Airborne dispersal of micro-organisms.

Aseptic technique requires the use of sterile equipment, avoidance of direct contact and other methods to reduce the probability of introducing pathogens into susceptible areas.

Indication
• All procedures which breach the skins integrity.
• All surgical wounds require protection from bacteria, particularly during the initial 48 hours after surgery. Unless it is essential, dressings must not be removed during this period. (Wilson 1995). If strike through occurs the dressing should be changed using Aseptic technique.
• Non surgical wounds also require protection from bacteria and all dressing changes must be performed using aseptic technique.

Notes
Clean, dry surgical wounds do not normally require cleaning. If cleaning is required, warm sterile saline should be used.

Wounds should not be left exposed for long periods as increases it the risk of contamination of the wound from organisms in the environment and allows the wound to dry out and cool down delaying wound healing.

Performed by
• Staff who have been trained in the procedure or staff under direct supervision.
• Staff must be free of sore throats or septic lesions.
• Staff undertaking the technique must not be wearing wristwatches, bracelets, stoned rings, artificial nails or nail varnish.

Equipment
• A metal dressing trolley
• Sterile dressing pack
• Sachets of normal saline (for wound management and catheterisation)
• Alcoholic antiseptic solution (Invasive procedures)
• Dressings
• Plastic apron
• 1 pair non sterile vinyl gloves
• Alcohol gel pump dispenser
• Sharps bin.

Dressings
Dressing choice should be appropriate to correlate with the stages of wound healing, referring to the Trust Wound care Formulary (2004).

To ensure the optimum wound healing environment the dressings should be impermeable to bacteria to prevent infection of the wound.

Monitoring of the wound should take place using Trust Wound assessment chart (SHK HN 134).

Collection of specimens

A specimen should be taken in the form of a wound swab where there is evidence or suspicion of infection such as the presence of the following;

Surgical wounds
• pus or purulent discharge
• clinical cellulitis (heat, redness, swelling and pain) (Spencer 1993)

Chronic wounds
• presence of pus
• increased wetness
• change in pain
• change in appearance of granulation tissue
• odour (Cutting and Harding (1994).

If there is pus or exudate present, samples can be sent in a sterile container. The swab should be taken for culture and antibiotic sensitivity. The wound should be cleaned prior to obtaining the sample to remove debris and necrotic material and to reduce surface contamination. (Cooper, Lawrence 1996.)

Large wounds with more than one area with evidence of infection should be swabbed with a separate swab for each area.

Details of wound site, type and current antibiotic treatment must be recorded on the microbiology request form.
<table>
<thead>
<tr>
<th>Action</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. The Environment</strong></td>
<td>Transfer of organisms via the airborne route is unlikely to be a problem; transfer on the hands of staff is a much greater risk. (Ayliffe, Babb and Taylor 1999)</td>
</tr>
<tr>
<td>1. Aseptic technique should be carried out in a clean clinical area if possible. Aseptic technique should not be carried out during high dusting or bed-making. If dressing wounds at the bedside ensure the area is clean and dust free. Drawing of bed curtains pre-procedure is only required to protect the patients’ privacy.</td>
<td></td>
</tr>
<tr>
<td><strong>B. The Patient</strong></td>
<td>To reduce the risk of wound infection from the patients own flora.</td>
</tr>
<tr>
<td>1. Infection can be acquired from the patient’s own body (Endogenous). Educate the patient to keep their hands clear of any wounds etc. during the procedure and if they need to cough to turn away from their wound and cover their mouth.</td>
<td></td>
</tr>
<tr>
<td>2. Explain the procedure and make the patient comfortable. Offer analgesia and toilet facilities before the procedure.</td>
<td>To obtain informed consent</td>
</tr>
<tr>
<td><strong>C. Equipment decontamination</strong></td>
<td>Metal does not readily support microbial growth and can easily be decontaminated.</td>
</tr>
<tr>
<td>1. A metal trolley should be available and only used for the purpose of aseptic procedures.</td>
<td>Micro-organisms cannot multiply on a clean, dry surface. Adequate cleaning is a pre-requisite for disinfection and sterilisation.</td>
</tr>
<tr>
<td>2. All surfaces of the trolley should be cleaned with detergent and water and dried daily to prevent the collection of dust and debris and whenever there is visible contamination.</td>
<td></td>
</tr>
<tr>
<td>3. Before each aseptic procedure the trolley should be checked to ensure it is clean and dust free. If soiled clean as outlined above. The upper trolley surface should then be disinfected with an alcohol wipe and allowed to air dry.</td>
<td>To reduce the number of micro-organisms on the trolley to a safe level.</td>
</tr>
</tbody>
</table>
### D. Hand hygiene

1. Hands should be washed immediately pre-procedure following Trust Hand Washing Policy (chapter 21 Infection control manual.). Alcohol hand rub should then be applied.

2. Alcohol gel should be available to use during the procedure to decontaminate the hands if contamination occurs i.e. hand contact with the curtains, bed and non-sterile items.

3. Trust Uniform policy must be adhered to.

   - To remove transient organisms and prevent cross infection.

   - To ensure no contamination from equipment occurs.

   - Wristwatches and stoned rings harbour micro-organisms and cause cross infection.

### E. Personal protective equipment

1. Uniforms can become a source of cross infection if wet or soiled. A disposable white plastic apron should be worn for each procedure.

2. Sterile vinyl or low-protein latex non-powdered gloves should be worn for the procedure. Hands should be washed immediately after removing gloves.

   - To reduce the risk of cross infection.

   - To reduce the risk of latex allergy.

### F. Aseptic technique

1. Explain to the patient that you would like to examine their wound and check their dressing or carry out invasive procedure.

   - To obtain consent.
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<tbody>
<tr>
<td>2.</td>
<td>Offer patient analgesia / toilet facilities.</td>
</tr>
<tr>
<td>3.</td>
<td>Check the wound assessment chart if carrying out dressing change.</td>
</tr>
<tr>
<td>4.</td>
<td>Wash and dry hands following trust policy.</td>
</tr>
<tr>
<td>5.</td>
<td>Put on a clean apron.</td>
</tr>
<tr>
<td>6.</td>
<td>Prepare trolley as in C2 &amp; 3. Collect all equipment and place on the bottom of the Trolley.</td>
</tr>
<tr>
<td>7.</td>
<td>Take trolley to the bedside, pull curtains around the patient and raise bed to safe height.</td>
</tr>
<tr>
<td>8.</td>
<td>Wash and dry hands following trust policy.</td>
</tr>
<tr>
<td>9.</td>
<td>The gloved hand technique should be used with appropriate dressing pack and supplementary items as required if undertaking dressing change.</td>
</tr>
<tr>
<td>10.</td>
<td>Peel open dressing pack, carefully depositing contents onto the trolley using the corners only.</td>
</tr>
<tr>
<td>11.</td>
<td>Remove yellow bag carefully place hand inside, remove dirty dressing carefully using yellow bag as a glove. If undertaking dressing change invert bags and attach to trolley.</td>
</tr>
<tr>
<td>12.</td>
<td>Open any supplementary items. If using saline remove sachets from warm water and disinfect with alcohol wipe. Pour into container. Wound cleansing should only be carried out for removal of exudate and necrotic tissue only. Alcoholic solutions should be used for invasive procedures e.g. line insertion.</td>
</tr>
</tbody>
</table>

**To ensure patient comfort before the procedure begins.**

**To determine what dressings/ equipment is required.**

**To remove transient organisms and prevent cross infection.**

**To reduce the risk of cross infection.**

**To prevent disruption to procedure.**

**To ensure patient privacy.**

**To reduce the risk of cross infection.**

**To reduce the risk of cross infection.**

**To reduce the risk of cross infection.**

**To reduce the risk of cross infection.**

**To prevent damage to wound bed.**
13. Gentle irrigation with warmed saline in a syringe without a needle should be used for wound irrigation.

14. After cleansing, a swab should be taken for C&S if there sighs of infection.

15. Apply alcohol gel to hands and put on sterile gloves from dressing pack.

16. Registered nurse to assess wound with regard to cleansing and dressing selection. Carry out procedure using both hands.

17. Place all disposable materials into a yellow bag including gloves. Seal dressing bag and place on top of trolley. Disinfect hands with alcohol gel.

18. Make the patient comfortable.

19. Remove apron, wash hands and push trolley to dirty utility room. Remove all clean equipment from the trolley and place back in clean utility.


22. Report any sign of infection to Medical staff.

<table>
<thead>
<tr>
<th>Action</th>
<th>Reason</th>
</tr>
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<tbody>
<tr>
<td>To determine the causative organism.</td>
<td>To reduce the risk of cross infection.</td>
</tr>
<tr>
<td>To reduce the risk of cross infection.</td>
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</tr>
<tr>
<td>To document procedure.</td>
<td>To ensure any necessary treatment is commenced.</td>
</tr>
</tbody>
</table>
References


GUIDELINES FOR VACUUM ASSISTED CLOSURE (VAC THERAPY)

1. Introduction
Vacuum Assisted Closure (VAC) Therapy is a non-invasive, active wound closure system that uses controlled, localised negative pressure to promote wound healing in both acute and chronic wounds. It promotes healing via stimulation of granulation tissue, enhancing dermal perfusion, and removes interstitial fluid. This allows a decrease in the oedema of the surrounding tissue, which decompresses the small blood vessels and thus increases blood flow to the wound.

VAC encourages mechanical stretching and approximation of the wound edges, it also provides the optimum warm moist healing environment needed to promote wound healing.

VAC can be used on both acute and chronic wound types. It can also be used to promote flap survival and skin graft uptake. VAC is also useful to remove infected material at the wound bed.

This guideline should be read in conjunction with the V.A.C. Therapy Clinical Guidelines (KCI 2007). Copies available on all wards or from the Tissue Viability Team (Ext.1928).

2. Aim of the Guidelines
• To identify criteria for the introduction of VAC therapy to patient care
• To provide guidelines for wound management of the VAC therapy system
• To provide a pathway for the transfer of VAC from the hospital to the community setting

3. Performed by
Only the staff listed below who have the knowledge and skills in its use and have been deemed competent should assess and apply VAC therapy.

• Registered nurses/midwives
• Medical practitioners
• Assistant practitioners

Student nurses/midwives may assess for and apply VAC therapy under strict direct supervision of a competent practitioner.

The VAC machine will be demonstrated by the KCI Representative as part of the Medical Devices Training or by a member of the Tissue Viability team prior to use and this will be documented on the Medical Devices Competency form.

The TVN team in conjunction with the KCI Company Representative or a registered nurse who has undergone the Advanced Practitioners Course in VAC Therapy will provide in house education sessions and deem the above listed staff competent in the use of VAC therapy.
Employees’ responsibility
As an Employee of St Helens & Knowsley Hospitals NHS Trust you will be expected to act in a manner as to safeguard and promote the interests of the patient/clients. To practice competently you must possess the skills and attributes required for safe practice. You must acknowledge the limits of your personal competence and only undertake practice and accept responsibilities for those activities for which you are suitably skilled and experienced. (NMC 2002)

Anticipated Outcome
• Patient will have the VAC Therapy Unit used safely and according to manufacturer’s recommendations and medical/surgical team’s instructions.
• Patient’s wound(s) will show signs of improvement, as evidenced by a decrease in wound size and the development of granulation and epithelial tissue.
• The Patient understands the treatment plan, including any possible side-effects or complications.

4. Use of VAC therapy

4.1 Aims of VAC Therapy
• Decrease interstitial oedema
• Granulation tissue formation
• Exudate management
• Wound contraction
• Provide a warm moist healing environment required for optimum healing.
• Assist in the removal of infectious material and/ or fluid from the wound bed.

Vac Therapy can be used for both Acute and Chronic wounds (See page 3 KCI Guidelines 2007).

4.2 Factors which may affect wound healing
• Nutritional status
• Age
• Continence
• Medications i.e. steroids, chemotherapy
• Concurrent disease i.e. malignancy, diabetes
• Pressure relief
• Pain
• Depression
• Anaemia
• Infection
• Circulation to the wound bed

4.3 Contraindications
• Malignancy in the wound
• Non enterocutaneous or unexplored fistula.
• Direct placement of VAC dressings over exposed vital structures (i.e. tendons, ligaments, blood vessels, anastomotic sites, organs and/or nerves.
• Necrotic tissue with eschar present in the wound
• Untreated Osteomyelitis
• Sensitivity to silver (V.A.C. GranuFoam Silver only or sensitivity to known components of drape or foam dressing.

N.B. Patients who have an active osteomyelitis present can have VAC therapy started once they are being treated with antibiotics as per the Trust Antibiotic Policy and/or have received appropriate debridement of bone if necessary.

4.4 Precautions
Precautions should be taken for patient with: -
• Active bleeding
• Difficult haemostasis
• Patients’ on anticoagulant therapy

(See further information for the precautions that should be taken in the above on Page 3 KCI VAC Guidelines 2007)

4.5 Assessment for VAC therapy
An assessment for VAC therapy should be carried out in a holistic manner by a competent registered practitioner who has been deemed competent in VAC therapy, taking into consideration:

• Suitability of the wound for VAC therapy.
• Contraindications and precautions for treatment.
• Encompass all factors which may affect wound healing.
• Document clearly the aims of treatment.

The KCI Guidelines recommend that VAC should not be used on a wound that satisfies any of the contraindications criteria (Page 3 KCI Guidelines 2007).

If a wound however shows any of the precautions criteria then application of VAC can be carried out with close monitoring of the wound for any problems (Page 3 KCI Guidelines 2007).

When possible, photographs and measurements of the wound should be carried out at the start of therapy. (The patient’s written consent is required for photography. Use Trust photography consent form (NHS 6).

Regular review should take place throughout the therapy by the TVN or Advanced VAC practitioner, to monitor progress; this must be documented in the patient case notes and the VAC therapy Core Care Plan.

5. VAC Machines and Dressing

5.1 Type of V.A.C. Therapy Machines available
• VAC ATS System (recommended for non-mobile patients or high exudating wounds).
• VAC Freedom System (portable system, recommended for mobile patients or low/medium exudating wounds).
Updated versions of the VAC ATS and VAC Freedom machines (InfoV.A.C. and ActiV.A.C.) are being launched in 2008; these may be used within the trust.

5.2 Types of foam dressing

KCI provide three types of foam for use with the VAC machine.
- Black Granufoam (PU)
- White Foam Dressing (PVA)
- GranuFoam Silver

Foam choice is dependent on the following;
- Wound type (Wound Specific Advice and Protocols See pages 25-34 of the KCI guidelines 2007).
- Any structures visible i.e., exposed organs/blood vessels/tendons
- Presence of any undermining/tunnelling.
- Presence of infection
- Patients' pain tolerance.
- Presence of any precautions criteria

6. Setting the Machine Pressure and Therapy Type

6.1 General pressure recommendations
- Black Granufoam (PU) - 125 mmHg
- White Versafoam (PVA) - 150 mmHg (Minimum pressure 125 mmHg)
- If a combination of GranuFoam and White foam are used then the target pressures should be for the white foam at 150 mmHg
- V.A.C pressure settings may be adjusted in increments of 25 mmHg as described on page 5 KCI V.A.C. Guidelines 2007 Specific wound type. Pressure settings can be found in the KCI Guideline Booklet and on pages 25-34 Wound Specific advice and Protocol.

6.2 Therapy Type - Continuous vs. Intermittent Therapy

Therapy should always be commenced on continuous treatment for the first 48 hours. Following this in some cases treatment can then be changed to Intermittent Therapy of 5 minutes on 2 minutes off duration (page 6 KCI V.A.C. Guidelines 2007).

Always use continuous therapy in wounds with undermining, diabetic foot ulcer, sternal wounds, high exuding wounds and when using Abdominal V.A.C. dressing kit.

6.3 Daily recommended therapy time

For VAC Therapy to be of therapeutic value to healing the patients wound KCI recommend that the therapy should be switched on and active for 22 hours out of every 24 hours.

6.4 Dressing Changes Recommendations

Routine dressing changes are recommended by KCI every 48-72 hours, but no less than 3 times a week.

For infected wounds dressings may be required more frequently.
7. Wound Specific Foam Selection and Therapy Pressures

Further information can be found in the KCL VAC Therapy Clinical Guidelines on the following topics:

<table>
<thead>
<tr>
<th>Wound Type</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute/Traumatic wounds</td>
<td>25</td>
</tr>
<tr>
<td>Abdominal Wounds</td>
<td>26</td>
</tr>
<tr>
<td>Sternal wounds</td>
<td>27</td>
</tr>
<tr>
<td>Pressure Ulcers</td>
<td>27</td>
</tr>
<tr>
<td>Lower Extremity Ulcer</td>
<td>28</td>
</tr>
<tr>
<td>Diabetic Foot Ulcers</td>
<td>29</td>
</tr>
<tr>
<td>Infected Wounds</td>
<td>29/30</td>
</tr>
<tr>
<td>Other Post Operative Wounds</td>
<td>31</td>
</tr>
<tr>
<td>Meshed Grafts/Dermal substitutes</td>
<td>31/32</td>
</tr>
<tr>
<td>Flaps</td>
<td>32/33</td>
</tr>
<tr>
<td>Enterocutaneous Fistulae</td>
<td>33/34</td>
</tr>
</tbody>
</table>

8. Consent to VAC therapy treatment

8.1 Patient consent
Prior to the commencement of therapy the patient should be given full information on what the therapy entails and any alternative therapy available. They should have an opportunity to read the KCI information booklet for patients and discuss the treatment options with the Nurse/Medical Practitioner.

8.2 Consultant consent to treatment
If it is decided following a wound assessment by the Tissue Viability Nurse (or competent registered practitioner who has been deemed competent in VAC therapy), the best option for the patient’s wound healing treatment plan is VAC therapy, then written consent in the patient’s medical records by the Consultant or Senior Physician in charge of that patient’s care must be obtained prior to commencement of treatment.

If VAC therapy is to be used for a wound that would normally be contra-indicated then it is the Consultant’s responsibility to make the decision for treatment. This must be documented by them in the patient’s medical records. Examples of which could be:

- In patients who have a malignancy and who are to undergo further treatment of chemotherapy/radiotherapy following healing.
- Those patients who it is their best option of healing or managing the symptoms of exudates levels in order to relieve distress and promote discharge home.
9. Procedure for a basic V.A.C. dressing application

Equipment

- Clean trolley
- Dressing pack
- Plastic apron
- Sterile gloves
- Cleansing agent for irrigation – 0.9% Normal Saline unless otherwise indicated
- Scalpel
- Scissors
- Eye protectors (as required)
- Thin Hydrocolloid
- Appropriate foam dressing
  - VAC GranuFoam (black) complete dressing kit
  - VAC WhiteFoam Dressing (white) – Requires separate SensaTRAC pad and Drape kit.
  - V.A.C GranuFoam Silver complete dressing kit
- Mepitel (if required)
- Canister. ATS 500ml, Freedom 300ml
- Complete a Wound Assessment Chart prior to starting VAC Therapy SHK HN 134 (this should be attached to patients notes)
- VAC Core care plan and record sheet. (Available from the intranet, nursing support section)

<table>
<thead>
<tr>
<th>Action</th>
<th>Rationale</th>
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<tbody>
<tr>
<td><strong>Preparation for the procedure</strong></td>
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</tr>
<tr>
<td>1. Explain the procedure to the patient and obtain verbal consent. Give patient chance to read the patient information booklet.</td>
<td>Reduce the patient’s stress and anxiety. Obtain consent for the procedure.</td>
</tr>
<tr>
<td>2. Assess the patient’s pain tolerance and ensure the patient has had any prescribed pain relief prior to dressing commencement.</td>
<td>Ensure any medication for pain management has been given.</td>
</tr>
<tr>
<td><strong>Removal of dressing</strong></td>
<td></td>
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<tr>
<td>3. Wash hands using soap and water using Ayliffe technique and dry thoroughly. Put on non-sterile gloves and apron.</td>
<td>To avoid risk of infection.</td>
</tr>
</tbody>
</table>
4. 15-30 minutes prior to dressing change clamp the patient end clamp, allowing any exudate in the canister end to be drained into the canister. Close the clamp to the canister. Switch off the V.A.C. Machine. Separate the patient end tube from the canister end tube by disconnecting the connector, just before starting to remove the dressing. To deactivate the VAC therapy and allow the decompression of the foam.

5. Prepare trolley with all essential equipment as per Trust Aseptic Technique Guidelines. Prepare the patient and area around the patient’s bed for dressing. To avoid risk of infection.

Separate the patient end tube from the canister end tube by disconnecting the connector, just before starting to remove the dressing.

6. Check V.A.C. care plan for previous treatment option, foam type and number used. To ensure all foam removed at dressing change and decrease risk of foam being left behind and causing infection.

7. Put on Sterile gloves. Slowly remove old drape by gently stretching the drape horizontally and pull up from the skin. DO NOT PEEL. Remove the foam and any liner and count the pieces and foam type and liner type. To decrease risk of trauma to intact skin on removal.

   To ensure all foam removed.

<table>
<thead>
<tr>
<th>Application of new dressing</th>
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<tbody>
<tr>
<td>8. Carry out a new assessment of the wound.</td>
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<tr>
<td>9. Cleanse wound only if required using 0.9% saline for irrigation.</td>
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<tr>
<td>10. Dry the surrounding skin around the wound thoroughly and protect edges with a thin hydrocolloid and/or Cavillon.</td>
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<tr>
<td>11. Cut the VAC Granufoam to the shape of the wound so that the foam just sits inside the wound to the wound edges and to all undermined areas. More than one piece of foam may be required. DO NOT over pack the cavity by compressing in the foam.</td>
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<tr>
<td>Step</td>
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<td>15.</td>
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<tr>
<td>16.</td>
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</tbody>
</table>
17. Insert the canister into the unit until it clicks into place. See V.A.C. Manual with each type of machine for specific instructions.  
To complete the dressing seal and facilitate application of pressure.

18. Switch on the machine and set the pressure level, intensity level and therapy type according to Foam type and Wound type as recommended by the KCI V.A.C. guidelines.  
To facilitate communication on wound progress between all disciplines.

19. Ask the patient to report any increase in pain or if the alarm to the machine rings. Inform a member of staff.  
To allow staff to reassess therapy pressure and correct any alarm, so that machine is working effectively and risk of infection by decreased.

### Waste disposal

21. Dispose of any old dressings and canister in a yellow plastic bag as per trust infection control policy.  
To decrease cross infection.

22. Return any unused dressings to store, clean trolley and return to position of storage.  
To prepare for re-use.

23. Wash hands thoroughly using Ayliffe technique with soap and water.  
To decrease risk of cross infection.

### Documentation

24. Record on the V.A.C. Core care Plan, wound size (measure weekly) number of pieces of foam and wound liner (Mepitel) inserted and therapy pressure and setting.  
To facilitate communication on wound progress between all disciplines.

25. Record exudate level daily on V.A.C. core care plan.  
Large amounts of exudate need to be replenished to maintain fluid balance.

26. If the machine alarms, check immediately and correct fault using the KCI manual guidebook (in each VAC box). If fault cannot be corrected contact TVN or KCI 24hour helpline number for advice (0800 9808880). If still not corrected stop machine REMOVE ALL FOAM and change to a suitable conventional dressing type for that wound type described in the wound care manual.  
To correct problems as soon as possible, return to accurate therapeutic care and decrease risk of infection.
10. On-going Care and Assessment

10.1 Dressing/machine checks
Check the machine, dressing and canister fluid every 2 hours. This is to ensure that the machine is applying the set therapy pressure, detect any early signs of excessive bleeding and check for any problems. There should NOT be frank blood in the canister. If frank or excessive bleeding the therapy should be stopped, the dressing removed and the wound reassessed.

10.2 Dressing/ Canister Stores
All dressings and canisters are obtainable from the Equipment Pool.

VAC Machines for use in Emergency cases only i.e. Necrotising Fasciitis or open abdominal cases are available from main theatre.
Please contact the TVN team (Ext. 1928 Mon-Fri 8-6pm) with details of:
- Patient name
- Hospital number
- Ward
- Wound type
- Machine Number

10.3 Machine alarms
If the machine alarms check IMMEDIATELY, read the fault on the V.A.C screen and correct fault using the KCI manual guidebook. If the fault cannot be corrected Contact TVN (Bleep0021/1928) or KCI 24hour helpline number (0800 9808880) for advice. If still not corrected stop machine REMOVE ALL FOAM and change to a suitable conventional dressing for that wound type described in the wound Care Formulary Manual.

The dressing should be changed if the V.A.C. machine has been switched off for more than 2 hours in every 24 hours.

11. Discontinuation of VAC therapy

VAC Therapy should be discontinued when the goal of the therapy has been achieved. This may be to complete wound closure or when no progress is made over a 2 week period or if any complications occur. The decision should be made by the TVN team or an advance practitioner with the patients Consultant's approval.

Procedure following discontinuation of VAC therapy and patient transfer to another ward within the Trust

Normal hours (9am – 5pm, Monday to Friday) Contact the Tissue Viability Team Administrator (ext 4139, bleep 1612) with the following details

- Patient name, D.O.B., Hospital Number
- Ward
- VAC machine number
- Date of cancellation
Out of hours (5pm – 9am, weekends or bank holidays) ring KCI (0800 980 8880) with the above details to inform them the machine is no longer being used. Inform Tissue Viability Team Administrator of the cancellation number. Return discontinued machine to the Equipment Pool for collection.

DO NOT use a cancelled machine on another patient.

12. Discharge planning

A patient can be discharged to community with a VAC machine providing the following criteria are adhered to.

12.1 Ward staff responsibilities
• Ensure the patient is medically discharged.
• Inform Tissue Viability Team of all patients on (ext 1928) of expected discharge date so funding/community training can be arranged.
• Inform District Nurse Liaison on 0151 290 2030 at start of therapy so they can ensure PCT staff trained to use VAC on discharge.
• Complete district nurse form, stating pressure therapy type, number of pieces of foam used at last dressing change and date last canister changed.
• Ward staff to obtain V.A.C. Therapy Hospital-to-Home Discharge pack from the Equipment Pool and complete all sections of the Discharge check list.
• Ensure patient has the following dressings before they are discharged:
  Supply of:
  o Foam dressings (2)
  o Canisters (1)
  o Dressing Pack
  o Alternative conservative dressings in case of VAC failure.
• Patient and family instructed on following:
  o Changing of canister
  o VAC alarm system
  o What to do if alarm can not be corrected

12.2 Tissue Viability Team responsibilities
• Tissue Viability Team Administrator to contact
  o PCT to transfer payment on day of discharge
  o KCI of discharge date.
  o Complete SBS order and update V.A.C. Database
• If patient not from this area contact GP district nursing service to agree funding prior to discharge.
• Acute Trust Tissue Viability Nurse to inform the appropriate Community Trust Tissue Viability Nurse of impending discharge.
• Inform KCI clinical advisor (07966321110) if required to educate community team.

Please note: The safe discharge of patients on V.A.C. can take 24-48hrs depending on PCT concerned. All PCT’s work differently and require variable notice prior to patient being discharged.
13. General VAC Therapy Tips

Further information can be found in the KCL VAC Therapy Clinical Guidelines on the following topics:

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<td>23/24</td>
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<tr>
<td>Foam Selection</td>
<td>8</td>
</tr>
<tr>
<td>Continuous vs. intermittent pressure?</td>
<td>6</td>
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<tr>
<td>Tips for dressing application</td>
<td>12</td>
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<tr>
<td>Care and Safety Tips</td>
<td>35-38</td>
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<td>Dressing Removal</td>
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<td>Managing Dressing Adherence</td>
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<tr>
<td>Maintaining Dressing Seal</td>
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<td>Infected Wounds</td>
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<td>Intensity Feature</td>
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<td>Pain Management</td>
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<td>Wound specific Advice and Protocols</td>
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<tr>
<td>Using a Y Connector</td>
<td>16</td>
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14. References


PATIENT CARE PLAN - VAC Therapy

Problem: Patient has a wound to ............................................................................................
............................................................................................. which requires VAC Therapy.

• Expected Outcome: Patient’s wound(s) will show signs of improvement, as evidenced by a decrease in wound size and the development of granulation and epithelial tissue.

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Plan of care</th>
<th>Evaluation Date &amp; Sign</th>
<th>Discontinued Date &amp; Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Complete a Wound Assessment Chart prior to starting VAC Therapy.</td>
<td></td>
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<tr>
<td>2.</td>
<td>Inform the Tissue Viability Team that the patient is on VAC Therapy if admitted from the community.</td>
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<tr>
<td>3.</td>
<td>Dressing should be changed 3 times weekly using an aseptic technique. Dressing due for change on ....................................................................................................................</td>
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<tr>
<td>4.</td>
<td>Record on wound assessment chart the type and number of pieces of foam inserted and removed at each dressing change.</td>
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<tr>
<td>5.</td>
<td>Ask the patient to report any pain during dressing changes. If present refer to medical staff re prescription of analgesia to be given prior to dressing change.</td>
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<tr>
<td>6.</td>
<td>Ask the patient to report any pain during treatment - if present report to tissue viability nurse as may indicate a need to change the treatment pressures.</td>
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<tr>
<td>7.</td>
<td>Visually check every 2 hours: the dressing to ensure that the foam is firm and collapsed in the wound bed while therapy active: the machine is on and the amount of exudate in the canister. Document all interventions on the VAC therapy record sheet.</td>
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<tr>
<td>8.</td>
<td>Observe for signs of infection, i.e. Pain/tenderness, redness, odour, discharge, swelling, raised temperature. Report to medical staff.</td>
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<td>9.</td>
<td>Record quantity of exudate (include on patient’s fluid balance chart if commenced) on the VAC chart on a daily basis. Record every canister change on the VAC chart.</td>
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<tr>
<td>10.</td>
<td>Observe for signs of bleeding. Some slight blood loss may be evident but following any frank haemorrhage stop the machine immediately and remove the dressing. Contact the Tissue Viability Team or Medical Staff.</td>
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<tr>
<td>11.</td>
<td>Provide the patient/carer with ‘Patient Information Leaflet’ which is located in VAC unit box.</td>
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<tr>
<td>12.</td>
<td>Ask the patient to contact a member of the nursing staff if the alarm rings.</td>
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<tr>
<td>13.</td>
<td>If alarm cannot be corrected contact a member of the tissue viability team or KCI 24hour helpline for support (Tel 0800 980 8880).</td>
<td></td>
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<tr>
<td>14.</td>
<td>Never leave the machine switched off for more than 2 hours in a 24 hour period with the foam in situ. Revert to conservative dressings until TVN available.</td>
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<tr>
<td>15.</td>
<td>Ensure tissue viability team are informed expected date of discharge if patient to be discharged on VAC therapy.</td>
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</tbody>
</table>
VAC Therapy Record Chart

Use this chart to record all interventions with the dressings and equipment

Patient Name: ................................................................................................... Hospital Number: ............................................. Ward: ................................
Consultant: ........................................................................................................
Type/Location of Wound: ......................................................................................
Date Treatment started: ........................................................................................
14 Day Review Date: ............................................................................................

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Wound size</th>
<th>Foam</th>
<th>No. of Mepitel pieces applied</th>
<th>Therapy type &amp; pressure</th>
<th>Daily canister volume</th>
<th>Canister changed Date/Time</th>
<th>Assessing Nurse Signature</th>
</tr>
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<tbody>
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AIM

NVQ level 3 health care assistance/support workers, who have achieved X19 parts 1 to 4 and CU2 parts 1 and 2 will be competent in the care of wounds under the supervision of a trained Nurse.

OBJECTIVES

Trained nurses will understand their responsibilities in supervising and directing NVQ level 3 health care assistants/support workers in wound care.
NVQ level 3 healthcare assistants/support workers will understand their role in the care of wounds.

Scope of professional practice states that:

Health care assistants to registered nurses/midwives and health visitors must work under the direction and supervision of those registered practitioners.
Health care assistance must not be allowed to work beyond their level of competence.
Continuity of care, appropriate skill/staff mix is important, therefore health care assistants should be an integral member of the caring team (UKCC 1992).

Health care assistants and Level 3 HCA’s are not allowed to carry out the following Dressings:

- Diabetic foot wounds
- Grade three and four pressure sores
- Burns
- Cavity wounds
- Compression and paste bandaging
- Sinuses
- Leg ulcers
- Trauma wounds
- Infected wounds
- Overgranulating wounds
- Necrotic wounds
- Dehisced surgical wounds
- Ischemic wounds
- Fungating wounds
- Gangrenous wounds

This list is not exhaustive, if in doubt refer to a registered nurse.
Any wound regardless of aetiology, which extends beyond epidermal/dermal tissue loss, may only be assessed and treated by a registered practitioner who has received the appropriate training.
Policy & Guidelines

CRITERIA

NVQ Level 3 health care assistants/support worker must:-

- Be nominated by their manager
- Have completed the relevant training programme
- Have achieved the appropriate modules, X19 or X13 and CU2
- Be assessed as competent by assessor

TRAINED NURSES RESPONSIBILTY

The trained nurse will:-

- Direct and supervise care
- Assess the wound bed and recommend cleansing and dressing selection
- The qualified nurse remains responsible:-

If following assessment of the wound they consider the wound to be at a satisfactory stage of healing and subsequently delegates the dressing procedure to a NVQ Level 3 Health Care Assistant/Support Worker.

- Document outcome of activity and assessment in records.
- Ensure that she / he maintains an up to date knowledge of wound dressings and dressing techniques.

THE NVQ LEVEL 3 HEALTH CARE ASSISTANT/ SUPPORT WORKER ROLE

The NVQ Level 3 Health Care Assistant/Support Worker will:-

- Work under the supervision and direction of a trained member of staff.
- Ensure clients behaviour and condition is observed and monitored throughout contact and any unexpected change or aspect which gives cause for concern is reported to an appropriate member of the care team without delay.
- Ensure where the client raises questions, which are beyond the workers responsibility, further advice or assistance is sought.
- Ensure where there are no contraindications before starting the activity, advice be sought from the appropriate member of the care team with minimum delay.
- Remove dressing from the wound.
- Seek advice for cleansing, assessment, and dressing selection from a trained member of staff.
- Complete the task as directed using the appropriate technique (aseptic/cleaning procedure).
- Ensure waste materials and equipment are disposed of in a safe manner.
- Ensure the outcome of the activity is recorded correctly in the documentation.
- Ensure that she / he maintains an up to date knowledge of wound dressings and dressing techniques.
PROTOCOL

All NVQ level 3 health care assistance/support workers performing dressing changes will have completed X13 or X19 and CU2 at level Three NVQ and will be assessed as competent in completing the task. They must be aware of the adverse effects and report and seek advice from a registered nurse.

Wound healing is a delicate and complex process that is affected by a multitude of factors, therefore a full holistic and comprehensive assessment of the wound is essential. A qualified nurse should assess all wounds with the necessary skills needed to undertake this procedure. It is advised that NVQ level 3 health care assistance/support workers who have received appropriate education and training may treat “superficial” wounds only under the guidance and supervision of a qualified practitioner and utilise “simple” dressings only.

Definitions:

Superficial wounds include,
Intact reddened skin, superficial tissue loss including the epidermis and dermis tissue loss.
E.g. blisters, abrasions, grazes, uncomplicated bites, scratches, grade one and two pressure sores, clean suture lines.

Simple dressings include,
Non medicated tulles, film dressings, foam dressings, non and low adherent dressings, absorbent pads.
Aim

To provide Clinical Guidelines that can be utilised by nurses, educators, and health care practitioners, to develop their skills in the application of maggot therapy and the care of the patient undergoing treatment.

Objectives

• That individual health care workers will deliver maggot therapy in accordance with current best practice and their organisations’, policies, guidelines and standards.
• That all patients receive the highest quality care as demonstrated by analysis of existing research and clinical evidence.
Indication for maggot therapy

Most infected wounds that contain slough or necrotic tissue are tissue for treatment with maggot therapy, but the therapy is particularly useful in situations where rapid debridement is required for other reasons. For example, if a patient has developed a pressure ulcer on a heel subsequent to orthopaedic surgery, and debridement and wound healing is not initiated quickly, then patient rehabilitation is delayed. If patients have been assessed as unfit for surgical debridement, maggot therapy may be considered as a safe alternative treatment. There are a number of other situations where maggot therapy may be the method of wound debridement.

Maggots mode of action

Maggots are living creatures that need oxygen to survive. Nurses often assume that maggots cleanse wounds by chewing and eating the devitalised tissue within the wound. This is not the case, as maggots do not possess teeth.

Maggots are in fact living chemical factories. They move over the surface of the wound secreting a powerful mixture of proteolytic enzymes that break down and liquidise dead tissue, which they subsequently ingest. Enzymes secreted by the maggots will only liquefy devitalised tissue. It has been proposed that once they come into contact with healthy human tissue the enzymes are inactivated, so there is no danger that maggots will remove good tissue from a wound along with devitalised tissue.

Maggots also kill or prevent the growth of bacteria in wounds by a number of different methods:

- They ingest and digest bacteria within the devitalised tissue in the wound, which are then killed in their gut.
- Maggots secretions increase the pH of the wound to around 8 - 8.5 due to the productions of ammonia, inhibiting the growth of some bacteria.
- Maggots secret chemicals with inherent antimicrobial activity and these may also help to combat infection.

Maggots are also able to combat wound infections caused by antibiotic-resistant strains of bacteria.
Contraindications for use

• If the patient refuses treatment, then this must be respected. There are few other contraindications to the use of maggot therapy, but as a precaution, it is recommended that they are not used in wounds that contain fistulae, or in wounds that connect with vital organs.

• Maggots may cause bleeding in a few isolated cases, this is thought to be due to erosion of the walls of fine capillaries by the maggot enzymes. As a result of this, it is recommended that maggots are used with caution near exposed blood vessels and that the wound is monitored regularly.

• Maggot therapy is not recommended for patients on anti-coagulant therapy in the community setting. As maggots cleanse wounds by liquefying the tissue, there is always an increase in exudate production, which is usually pinkish-red in colour, and can be mistaken for bleeding.

• Cancerous wound and tumours.
Nursing Considerations

- Demonstrates knowledge of correct storage of maggots.
- Ensures patient is fully aware of procedure. Obtains verbal consent and documented accordingly.
- Demonstrates knowledge of correct amount of maggots required and size of sterile net using appropriate tools.
- Demonstrate in depth knowledge of dressing selection pre maggot therapy.
- Ensure maggots are alive/active prior application.
- Demonstrates awareness of contraindications for maggot therapy.
- Ensures correct preparation of peri-wound skin.
- Competently applies maggots in accordance with instructions and employing organisations protocol.
- Able to dispose of maggots in accordance with employing organisation protocol.
- Monitors patients for signs of discomfort/pain or new symptoms.
- Demonstrates knowledge of post application care, care planning and accurate documentation.
- Prepare patient and environment and removal of maggots.
- Is aware of, and able to locate, information leaflets on maggot therapy for patient.
- Ensures dressing trolley has correct equipment prior to application of maggots.
- Provide patient with support and information about maggot therapy.
- Is aware of employing organisations guidelines on maggot therapy.
Method of Application

Maggots used in wound management are currently available in two formats, the first as loose maggots applied directly to the wound surface, the second as contained maggots applied to the wound whilst situated inside a sealed net bag.

The most suitable format will depend on the assessment of the wound by a competent practitioner who will decide which method of application will be more appropriate.

Application of Loose Maggots

Preparation of the wound site:

• Ensure the patient is positioned comfortably and in a suitable position for the dressing to be applied and that they fully understand all aspects of the treatment.
• Remove the existing dressing and cleanse the wound to remove any dressing residues.
• Cut a hole in a hydrocolloid sheet the size and shape of the wound and place into position pressing it firmly onto the intact skin. For larger wounds it may be more appropriate to cut strips of hydrocolloid dressing and place these around the margin of the wound.
• If the wound is relatively small and limited depth, a double layer of hydrocolloid may be applied to form a shallow chamber into which the maggots are introduced.
• If a hydrocolloid dressing cannot be used, the skin surrounding the wound may be protected with strips of a bandage impregnated with zinc paste.

Removing maggots from the transit container

• Add about 5ml of sterile saline to a container of LarvE, and gently agitate to remove the maggots from the walls and lid. If more than one pot of maggots is to be applied, pour the contents of the first container into the second and agitate as before. Repeat this process as many times as necessary.
• If necessary cut the piece of sterile nylon net (LarvE Net) supplied with each pack of LarvE so that it is large enough to cover the exposed area of the wound and part of the surrounding hydrocolloid border.
• Place the net on top of a sterile gauze swab and pre-moisten with saline to overcome surface tension effects.
• Slowly pour the saline containing the maggots onto the net. If the maggots are poured out too quickly, the saline (and some of the maggots) may run off the net onto the surrounding area.
Applying maggots to the wound

1. Invert the net over the wound. The maggots will not fall off the net when it is inverted, as they will be held in place by surface tension.
2. Tape the net securely to the hydrocolloid sheet using an impermeable plastic adhesive tape. When using a zinc paste bandage in place of the hydrocolloid sheet, press the nylon mesh firmly down into the paste and apply a further layer of bandage around the edges to anchor the net in position. Whichever technique is used, the central part of the net mesh remains unoccluded in order to permit free drainage of exudate and allow the maggots to obtain an adequate supply of oxygen.
3. Apply a saline soaked swab over the outside of the net and cover with the low-adherent dressing.
4. Complete the dressing with an absorbent pad held in place with tape or a bandage as appropriate. Occlusive dressings or film dressings should not be used, as these will cause the maggots to suffocate.
5. Dispose of any unused maggots as these can no longer be considered sterile.
6. Repeat steps 3 & 4 on a daily basis.

Application of BioFOAM Dressings

Preparation of the wound site

- Ensure the patient is positioned comfortably and in a suitable position for the dressing to be applied and that they fully understand all aspects of the treatment.
- Remove the existing dressing and cleanse the wound to remove any dressing residues.
- Protect intact skin around the margin of the wound by the application of a thin layer of zinc paste compound/cream or bandages.

Applying LarvE BioFOAM Dressings

- Remove the BioFOAM dressing from the transit container and place directly on the wound.
- Report using as many BioFOAM dressings as necessary to cover the area to be cleansed.
- Cover the BioFOAM dressing (s) with an absorbent pad.
- Complete the dressing with an absorbent pad held in place with tape or a bandage as appropriate.
- Dispose of any unused BioFOAM dressings.
- Perform a daily dressing check and repeat steps 3 & 4 daily.
NB: Where the BioFOAM dressing is applied and it overlaps the wound edges suitable protection must be applied to prevent excoriation of healthy tissue from maggot enzymes.

Occlusive dressing or film dressings **SHOULD NOT** be used. As these will cause the maggots to suffocate.

Whilst performing a daily dressing check, the BioFORM dressings positions may be altered on the wound site to areas of necrosis not previously covered by the dressing during each application.

It is important to explain to the patient that there may be an increase in production. Although the removal of devitalised tissue from the wound rapidly reduce wound odour.

In the early stages of maggot therapy the breakdown of the dead tissue can produce a transient increase in wound odour.

### Management & Disposal

- Maggots may stay in situ for 3-4 days maximum.
- They require checking daily and the outer covering of moist sterile gauge replaced.
- Upon removal dispose of used/dead maggots via a yellow trust disposal bag (double bag).
- Re-assess wound and wound management utilising trusts wound management folder.
Larval Therapy (Maggots)

The LarvE® Calculator indicates the recommended number of pots of sterile maggots required per application to achieve rapid debridement of sloughy/infected wounds.

LarvE® Calculator

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<th>60%</th>
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Once you have assessed the wound and determined which LarvE® pack you require, complete the prescription using the relevant codes provided.

Although these recommendations are based on extensive clinical experience with the technique, the final decision on the number of pots to be applied must remain the responsibility of the practitioner providing the treatment.
Intrinsic Factors


General Wound Care

Jeter KF and Lutz JB (1996). Skin care in the frail, elderly, dependent, incontinent patient. Advances in Wound Care 9:1; 29-34
Burns

Scars

Leg Ulcers


Diabetes


Infection


Skin Grafts


Pressure Ulcers


Department of Health (1993). Pressure Sores a key quality indicator. Lancashire:Department of Health


Touche Ross Department of Health (1993). The costs of pressure sores. Longon Department of Health


**Pain**
