WOUND MANAGEMENT POLICY

Incorporating Sterile Maggots in Wound Management Policy

DOCUMENT CONTROL:

<table>
<thead>
<tr>
<th>Version:</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratified by:</td>
<td>Clinical Quality Standards Group</td>
</tr>
<tr>
<td>Date ratified:</td>
<td>4 August 2015</td>
</tr>
<tr>
<td>Name of originator/author:</td>
<td>Clinical Nurse Specialist in Tissue Viability</td>
</tr>
<tr>
<td>Name of responsible committee/individual:</td>
<td>Clinical Quality Standards Group</td>
</tr>
<tr>
<td>Date issued:</td>
<td>26 August 2015</td>
</tr>
<tr>
<td>Review date:</td>
<td>August 2018</td>
</tr>
<tr>
<td>Target Audience</td>
<td>All Clinical staff</td>
</tr>
</tbody>
</table>
## CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. INTRODUCTION</td>
<td>4</td>
</tr>
<tr>
<td>2. PURPOSE</td>
<td>4</td>
</tr>
<tr>
<td>3. SCOPE</td>
<td>4</td>
</tr>
<tr>
<td>4. RESPONSIBILITIES, ACCOUNTABILITIES AND DUTIES</td>
<td>5</td>
</tr>
<tr>
<td>4.1 The Trust</td>
<td>5</td>
</tr>
<tr>
<td>4.2 Chief Executive</td>
<td>5</td>
</tr>
<tr>
<td>4.3 Director and Senior Managers</td>
<td>5</td>
</tr>
<tr>
<td>4.4 Tissue Viability Nurse Specialist</td>
<td>5</td>
</tr>
<tr>
<td>4.5 Matrons and Clinical Team Leaders</td>
<td>5</td>
</tr>
<tr>
<td>4.6 Registered Healthcare Professional</td>
<td>5</td>
</tr>
<tr>
<td>4.7 Healthcare Assistants</td>
<td>6</td>
</tr>
<tr>
<td>4.8 All Staff Members</td>
<td>6</td>
</tr>
<tr>
<td>5. PROCEDURE/IMPLEMENTATION</td>
<td>6</td>
</tr>
<tr>
<td>5.1 Holistic wound assessment</td>
<td>6</td>
</tr>
<tr>
<td>5.2 Local wound assessment</td>
<td>7</td>
</tr>
<tr>
<td>5.3 T.I.M.E</td>
<td>7</td>
</tr>
<tr>
<td>5.4 Autolytic Debridement</td>
<td>9</td>
</tr>
<tr>
<td>5.5 Sharp/Surgical Debridement</td>
<td>10</td>
</tr>
<tr>
<td>5.6 Maggot Debridement (Biosurgery)</td>
<td>10</td>
</tr>
<tr>
<td>5.7 Mechanical Debridement</td>
<td>11</td>
</tr>
<tr>
<td>5.8 I = Inflammation &amp; Infection Control</td>
<td>11</td>
</tr>
<tr>
<td>5.9 Use of Topical Anti-Microbial Solutions and Dressings</td>
<td>11</td>
</tr>
<tr>
<td>5.10 Use of Systemic Antibiotics</td>
<td>12</td>
</tr>
<tr>
<td>5.11 M = Moisture Balance</td>
<td>12</td>
</tr>
<tr>
<td>5.12 E = Edge Advancement</td>
<td>12</td>
</tr>
<tr>
<td>5.13 Malnutrition</td>
<td>13</td>
</tr>
<tr>
<td>5.14 Essential Nutrients for Wound Healing</td>
<td>13</td>
</tr>
<tr>
<td>5.14.1 Protein</td>
<td>13</td>
</tr>
<tr>
<td>5.14.2 Energy</td>
<td>14</td>
</tr>
<tr>
<td>5.14.3 Vitamins</td>
<td>14</td>
</tr>
<tr>
<td>5.14.4 Minerals</td>
<td>15</td>
</tr>
<tr>
<td>5.15 Fluids</td>
<td>15</td>
</tr>
<tr>
<td>5.16 Nutritional Assessment</td>
<td>15</td>
</tr>
<tr>
<td>5.17 Wound Cleansing</td>
<td>16</td>
</tr>
<tr>
<td>5.18 Wound Infection</td>
<td>17</td>
</tr>
<tr>
<td>5.19 Selection of Wound Dressing Product</td>
<td>17</td>
</tr>
<tr>
<td>5.20 Definition of Service</td>
<td>19</td>
</tr>
<tr>
<td>5.21 Aim of the Service</td>
<td>19</td>
</tr>
<tr>
<td>5.22 Quality Standard</td>
<td>19</td>
</tr>
<tr>
<td>5.23 Information Required and Referral Contact Details</td>
<td>19</td>
</tr>
<tr>
<td>5.24 Assessment and Treatment of Acute Wounds</td>
<td>20</td>
</tr>
<tr>
<td>5.25 Assessment and Treatment of Chronic Wounds</td>
<td>21</td>
</tr>
<tr>
<td>5.26 Leg Ulcers</td>
<td>21</td>
</tr>
<tr>
<td>5.27 Pressure Ulcers</td>
<td>21</td>
</tr>
<tr>
<td>5.28 Diabetic Foot Ulcers</td>
<td>23</td>
</tr>
<tr>
<td>5.28.1 Assessment of the Diabetic Foot Ulcers</td>
<td>23</td>
</tr>
<tr>
<td>5.28.2 Management of Diabetic Foot Ulcers</td>
<td>24</td>
</tr>
<tr>
<td>5.28.3 Debridement</td>
<td>24</td>
</tr>
</tbody>
</table>
1. **INTRODUCTION**

Treatments of wounds have a major impact on patients and carers and they are recognized as a major cost to the National Health Service.

The Trust recognises the need to have a clinical policy and evidence based guidance to inform and guide staff in the selection of wound dressing products and wound management, and the importance of consistent individualised care in different care settings.

2. **PURPOSE**

This policy offers guidance on wound management for acute and chronic wounds by means of initial assessment, plan of care and advice on selection and use of wound dressing products.

This policy acknowledges the physical, psychological and social impact of living with a wound. For the individual a wound can cause pain, systemic illness, an increased length of hospital stay, extended absence from work and normal activities, loss of earnings, low self esteem and altered body image.

To provide a standardised approach to wound care within a framework of holistic care, with clinicians encountering a wide range of wounds including acute surgical wounds and long-term chronic wounds.

Where palliative care is being provided, healing is not the primary aim. The goal is to ensure comfort, freedom from pain, itch, malodour and haemorrhage.

3. **SCOPE**

This policy applies to those members of staff that are directly employed by the Trust and for whom the Trust has legal responsibility including those staff employed in the Trust. For those staff covered by a letter of authority/honorary contract or work experience this policy is also applicable whilst undertaking duties on behalf of Trust. As part of good employment practice, agency workers are also required to abide by the Trust policies and procedures, as appropriate, to ensure their health, safety and welfare whilst undertaking work for the Trust.

This policy is intended for predominantly in the community, Tickhill Road Hospital site in-patient services and in-patient services for older people. However it may also be relevant for all other in-patient services.

In the North Lincolnshire and Rotherham localities tissue viability and wound care services is provided by North Lincolnshire and Goole NHS Foundation Trust and Rotherham NHS Foundation Trust. The tissue viability and wound care services provided are a combined hospital and community service.
4. RESPONSIBILITIES, ACCOUNTABILITIES AND DUTIES

4.1 The Trust

The Trust has responsibility to ensure that a comprehensive policy for wound management is developed, agreed and reviewed in accordance with best practice guidelines.

4.2 Chief Executive

The Chief Executive responsible for there being a structured approach to procedural document development and management in place. Although responsibility for procedural document development may be delegated to other officers, accountability remains with the Chief Executive.

4.3 Directors and Senior Managers

Will make arrangements for the effective implementation and monitoring of the policy.

4.4 Tissue Viability Nurse Specialist and Tissue Viability and Lymphoedema Service Nurses

These staff are employed within RDaSH. Their role is:

- To provide expert professional advice and education on the prevention and control of infection to other professionals, multi-disciplinary groups, patients and carers.
- To lead in the investigation of identified breaches of Tissue Viability
- To advise on treatments and interventions, delegating responsibility to Trust staff as appropriate.
- To give advice on complex issues relating to Tissue Viability and report findings to the relevant Business Divisions.
- To report any breaches in policy compliance through IR1 system and to Health and Safety Committee

4.5 Matrons and Clinical Team Leaders

Modern Matrons and Clinical Team Leaders will ensure that all staff are aware of the policy and adhere to it.

- Will identify training needs and ensure staff are appropriately trained in wound management and will record all training.
- Will incorporate wound management into staff performance review and the knowledge and skills framework.
- Will ensure compliance with the Audit requirements of the policy.

4.6 Registered Healthcare Professionals

Registered Healthcare Professionals will be competent in and responsible for the management of wounds relevant to their practice area. The qualified clinician has a duty to ensure that any care delegated to the Healthcare Assistant is in line with
the training the Health care assistant has received and the competencies the Health care assistant has achieved and demonstrated. The Registered Healthcare Professionals will remain accountable for the care delivered and will continue to reassess the wound regularly, minimum weekly.

4.7 **Healthcare Assistants**

Healthcare Assistants may contribute to wound management under the supervision of a Registered Healthcare Professionals. On no account should they take responsibility for wound management unsupervised.

4.8 **All Staff Members**

- Will adhere to the Trust Policy.
- Will use the information provided at clinical level to ensure correct choice of wound dressing and use this in a safe manner in accordance with manufactures guidance.
- Will identify their training needs and make their managers aware of training deficit.
- Will maintain personal records of training.
- Will report all clinical incidents around wound management.

5. **PROCEDURE/IMPLEMENTATION**

The wound healing process is complex and is affected by numerous general and local factors. It is essential to treat the whole person and not just the wound in isolation.

In order to be able to select appropriate dressing, it is therefore essential that all wounds are thoroughly assessed and management needs established prior to this. Selection is therefore based around which product will most cost effectively meet those needs and achieve the desired outcome.

Guidance for dressing selection is provided in the Doncaster Dressing Formulary. Dressing are supplied to patients without the need to raise a prescription from the community Nurses dressing stock cupboard and taken to the patients home.

Dressing required off formulary can be acquired for the patient with the completion of the appropriate form and signed by a Nurse Prescriber

*Appendix 1 - Doncaster Dressing Formulary*

*Appendix 2 Non Formulary Request form*

All wounds will be assessed and the details recorded in the appropriate integrated pathway of care.

5.1 **Holistic wound assessment** should be:-

- Patient centred.
- Accurate and precise.
- Detect the presence of complications
- Detect general patient factors which may delay healing e.g. nutritional status, diabetes, chronic infection and concomitant medication e.g. steroids.
- Able to provide a framework to monitor the stages of wound healing.
- Evaluate the effectiveness of any treatment.

5.2 Local wound assessment should take into account:

- Type of wound
- Location of wound
- Stage of healing – using recognised scale e.g. pressure ulcer category 1 – 4,
- Wound dimensions – length, width, depth, position/extent of sinuses, undermining of surrounding skin, using one of the following methods.

**Measurement should be carried out at least monthly**

- Cover the wound with a sterile transparent film and measure the maximum length and width
- Use a disposal paper tape from dressing pack to record maximum length and width
- Use a sterile measuring probe to measure depth and extent of undermining
- Photography is a useful way of measuring when incorporating a rule or tape into the photograph so scale can be provided
- Guidance for obtaining consent and storage of photographs are available in the Trust Policy on Consent.

Wounds should be assessed for any local barriers to healing, and the results documented at each dressing change using the following assessment tool:

5.3 The T.I.M.E acronym is a summary of the principles of wound bed preparation. It can be used as an aide-memoir to guide practice, heal wounds quickly and help your patients have a more comfortable path to healing.

<table>
<thead>
<tr>
<th>Wound Factors</th>
<th>Clinical Action</th>
<th>Wound Healing Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>Tissue non-viable necrotic tissue or slough present</td>
<td>Remove defective tissue debride</td>
</tr>
<tr>
<td>I</td>
<td>Inflammation and/or infection</td>
<td>Remove or reduce bacterial load antimicrobial dressings</td>
</tr>
<tr>
<td></td>
<td>increased exudates, surface discolouration or increased odour</td>
<td>debridement of devitalised tissue</td>
</tr>
<tr>
<td>M</td>
<td>Moisture imbalance heavy exudates – risk of maceration. Dry wound bed – risk of desiccation</td>
<td>Restore moisture balance absorb exudates, or add moisture to dry wounds</td>
</tr>
<tr>
<td>E</td>
<td>Edge of wound non-advancing or undermining e.g. chronic wound with prolonged inflammation</td>
<td>Reassess T, I and M if no longer an issue consider alternative therapies to kick-start healing</td>
</tr>
</tbody>
</table>
Appendix 3 Wound Management Guideline with TIME
Appendix 4 – Time is Money DP4974

T = Tissue, non-viable or deficient:

Devitalised tissue (slough & necrosis) forms a physical barrier to healing. It does not necessarily indicate presence of infection, but can create an ideal site for bacterial growth. Its presence can prolong the inflammatory phase of healing and prevent progression into the proliferative phase. Healing wounds should progress through from black necrosis, to yellow slough to red granulation, to pink epithelialisation.

Record the tissue type(s) present. Where possible, estimate the percentage of each tissue type - this should add up to a total of 100% e.g. "50% slough, 10% necrosis, and 40% granulation".

I = Inflammation / Infection:

Infection or heavy colonisation can interfere with all stages of healing and prolong the inflammatory phase, as can the presence of foreign bodies in the wound (e.g. grit or dressing particles). Be extra vigilant for signs of infection in patients with underlying medical conditions (such as diabetes or ischaemia) that may mask the usual signs of infection (e.g. redness or swelling).

Inflammation is not always a result of infection. Underlying disorders such as untreated venous congestion or vasculitis can prompt an inflammatory response. Record any signs of infection or heavy colonisation, using the criteria set out in the European Wound Management Association Position Document 'Identifying criteria for wound infection (2005) available on www.ewma.org/english/PositionPapers_en.htm

M = Moisture Imbalance:

Excess exudate, particularly chronic wound exudate that is chemically imbalanced, is harmful to the wound bed and surrounding skin. It can destroy growth factors and newly formed granulation tissue, as well as causing maceration, excoriation and breakdown of surrounding skin. Its nature may provide clues as to the presence of infection. Record the level of wound exudate (e.g. high, moderate, low, dry), its nature (e.g. serous, haemoserous, purulent), and its colour (e.g. yellow, green, red). Record its effect on the surrounding skin (e.g. maceration or excoriation).

E = Edge of wound, non advancing or undermined or is the epidermis failing to migrate across the granulation tissue:

Wound dimensions - length, width, depth, sinus formation and undermining of surrounding skin
Describing the anatomical position of the wound is important and being accurate in the description is a mark of a diligent clinician (NMC 2010)

<table>
<thead>
<tr>
<th>Anatomical location descriptors: these terms are useful when describing several wounds in relation to each other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximal</td>
</tr>
<tr>
<td>Distal</td>
</tr>
<tr>
<td>Lateral</td>
</tr>
<tr>
<td>Medial</td>
</tr>
<tr>
<td>Posterior</td>
</tr>
<tr>
<td>Anterior</td>
</tr>
<tr>
<td>Plantar</td>
</tr>
<tr>
<td>Dorsal</td>
</tr>
<tr>
<td>Palmar</td>
</tr>
</tbody>
</table>

Wound bed preparation is not an isolated process. A holistic approach should be used to diagnose and treat the underlying disorders / disease processes contributing to the wound, and any wider factors delaying healing.

**T = Tissue Management (Debridement)**

Debridement involves the removal of devitalised tissue and bacteria that impede wound healing. Some chronic wounds may require repeated (maintenance) debridement. (See NICE guidance on debriding agents available on: www.nice.org.uk/pdf/woundcareguidance.pdf)

Referral to Podiatry for expert clinical debridement is essential.

The method chosen will depend on comfort, odour control, patient acceptability, wound type & location, other patient factors, resources available and skill of the practitioner. These are summarised below

**5.4 Autolytic Debridement**

This is the body's own method of debridement. During the inflammatory stage of healing white blood cells and proteolytic enzymes flood the wound to destroy and remove debris.

If the underlying cause of the wound is well managed, autolysis is likely to progress easily and rapidly. Failure to treat the underlying cause is likely to simply result in more slough being produced. e.g. uncomplicated venous ulcers are likely to be sloughy due to the venous congestion.

Autolysis relies on a moist environment. If the wound is too wet or too dry, use an appropriate dressing to create a moist environment e.g. hydrogels and occlusive dressings to re-hydrate dry slough and necrosis; calcium alginates, hydrofibres and semi-permeable dressings to absorb excess exudate in wetter wounds. The choice of secondary dressing may also effect the moist environment e.g. film as the secondary dressing over hydrogel will achieve the maximum rehydration of the wound bed.
For more complex wounds, autolysis may prove too slow and an alternative method should be considered.

**WARNING:** Do not attempt to re-hydrate dry necrosis in a diabetic or ischaemic wound or where the underlying aetiology is unknown, as this may encourage a wet spreading gangrene. Keep the wound dry and refer urgently to a diabetic consultant / vascular specialist.

5.5 **Sharp/Surgical Debridement**

Involves the cutting away of dead tissue using a sterile technique, usually under local or general anaesthetic. It can help stimulate healing by converting a chronic wound back into an acute wound. It can cause trauma and pain. **It must be carried out by a professional qualified in sharp debridement and is readily available in the community by referral to Podiatry.**

**WARNING:** Do not attempt sharp or surgical debridement unless you have successfully completed the necessary course(s) and are qualified and competent in this skill.

5.6 **Maggot Debridement (Biosurgery)**

Involves the use of sterile larvae to remove slough and is available on FP10. There is some evidence it stimulates healing and reduces bacterial burden. It is important to fully assess the wound to determine if it is safe to use larvae;

Wounds that are not generally suitable for larvae therapy;

- Any wounds where the blood supply is insufficient to permit healing to take place
- Fistulae
- Wounds that connect with abdominal cavity
- Areas of necrotic tissue close to major blood vessels or nerves
- Recent treatment with topical silver products
- Recent treatment with oral or topical metronidazole
- Dry necrotic wounds (these require softening first)
- Patients with clotting disorders or receiving anticoagulant therapy unless they are under constant medical supervision in a healthcare facility

For further information refer to;

*Appendix 5 Larval therapy ordering guide*
*Appendix 6 Application and daily care of Bio Bag larval therapy*
*Appendix 7 Application and daily care of larval therapy*
*Appendix 8 Patient and carer guide to larval therapy*

There have been occasions when there has been accidental infestation of maggots in a wound – facultative myiasis – when flies lay their eggs on degenerative necrotic tissue and incubate their larvae. The larvae are fully grown in 50 – 60 hours and stop feeding on the necrotic tissue and need to migrate to find a dry crevice or soil in which to pupate, the next stage of their development.
found in a wound they require collection from the wound and disposal with the quickest way being immerse the area in body temperature water.

5.7 Mechanical Debridement

This involves the use of non-discriminatory physical force to remove necrotic tissue, and is not recommended. Traditionally wet-to-dry dressings were used, but this method can cause severe pain and trauma and should no longer be practiced. Other methods include ultrasonic therapy, pressure irrigation and whirlpool therapy. Evidence to support these methods is limited, and they are not recommended as a first line treatment.

5.8 I = Inflammation & Infection Control

Inflammation & infection control involves measures to minimise the risk of infection, to reduce bacterial burden and to treat any infection or excess inflammation.

NB: inflammatory conditions such as phlebitis, vasculitis and pyoderma gangrenosum, etc, do not respond to antibiotic therapy, but usually require anti-inflammatory therapy such as immunosuppressants and systemic cortico steroids.

Please refer to the Trust's policies for Infection control and prevention for guidance on:-

- standard infection control procedures
- hand hygiene
- management of clinical waste
- collection of specimens (taking a wound swab)

Wounds should not be routinely swabbed. A swab should be taken only where there is suspected infection present. Swab results do not identify infection (we rely on clinical assessment to do this), but the results will help to identify the organisms present and guide on most appropriate antibiotic therapy.

5.9 Use of Topical Anti-Microbial Solutions and Dressings

Anti-microbial solutions and dressings should generally be reserved for situations where the wound presents with a acute infection or is heavily colonised, when intervention is required for the removal and reduction of biofilm. Consideration to be given when the patient is particularly susceptible to infection, e.g. due to diabetes, ischaemia, or immunosuppression.

When selecting an antimicrobial staff should take into consideration the following:-

- The provision of an optimal healing environment
- Selection of appropriate antimicrobials to minimise the emergence of resistant bacterial strains e.g. binding with DNA or sequential activity
- Appropriate antimicrobial to manage symptoms e.g. exudate, pain
- Avoidance of topical sensitisation and/or allergic reaction
- Topical antimicrobials include iodine based products, silver products and medical honey.
5.10 **Use of Systemic Antibiotics**

Where infection is suspected, and the patient is not particularly susceptible to infection, take a wound swab and await the result before prescribing the antibiotics. If the patient is particularly susceptible to infection (e.g. due to diabetes, ischaemia or immunosuppression) or there is obvious spreading cellulitis, take a swab and begin antibiotics immediately. When the results of the wound swab are available, adjust the antibiotics accordingly. A 14-day course of systemic antibiotics is generally recommended for wound related infection. The Health Care Professional taking the wound swab is responsible for obtaining and recording the result in the patient's notes, and for liaising with the medical team regarding antibiotic therapy.

5.11 **M = Moisture Balance**

Moist wound healing is generally thought to accelerate healing, particularly re-epithelialisation. However excess exudate is thought to be harmful to the wound bed and surrounding skin. The chemical imbalance of chronic wound fluid can cause destruction of growth factors, new granulation tissue and the surrounding skin. Even acute wound fluid which is chemically balanced to promote healing may be harmful if left in contact with the wound bed over a long period of time – evidence suggests that chemicals become trapped within the tissue and set off a cascade of pathogenic abnormalities. Wounds that are left to dry out completely may be slow to epithelialise and are more likely to scar.

Achieving a moist, but not wet, environment relies on:

- Matching the moisture level of the wound with the fluid handling properties of the dressing
- Identifying and treating the source of the wound exudate e.g. infection, or oedema

**WARNING:** Do not attempt to re-hydrate or soften ischaemic or diabetic necrosis, as this may stimulate a wet gangrene. These wounds should be kept dry and any decision regarding debridement should be lead by a diabetic or vascular specialist.

5.12 **E = Edge Advancement**

Failure to achieve successful wound closure and re-establishment of an intact epithelium may be due to a number of factors including:

- cellular dysfunction (possibly as a result damage from prolonged contact with wound fluid)
- infection
- repeated trauma due to adhesion of dressing materials / poor dressing technique
- ischaemia
- desiccation
- failure to correctly manage the underlying cause of the wound (e.g. pressure, venous congestion)
Where more conservative management has failed, use of advanced therapies should also be considered. These include:

- Wound treatments such as protease inhibitors and/or collagen
- Topical Negative Pressure (TNP) to be undertaken only by a competent practitioner.

Consider referral to specialist teams e.g. Vascular team, or plastics team to give consideration to such procedures as skin grafts.

The general condition of the patient can interfere with wound healing therefore a need to assess and manage wider factors delaying healing:

- Immunosuppression. Patients who are immunocompromised due to illness or medication will heal slower. Risk of infection and progression through the inflammatory phase can be particularly problematic, and management should include close vigilance for signs of infection as well as efforts to optimise the patient's general health, for example through nutrition.

5.13 Malnutrition

Wound healing requires an adequate supply of macro and micronutrients as well as adequate hydration. Deficiencies can interfere with wound healing due to reduced tensile strength of new tissue, wound dehiscence, increased risk of infection, and fragile scar tissue. Patients with wounds are at increased risk of malnutrition or further malnutrition if they are already malnourished/underweight. This is due to increased nutritional requirements and losses particularly if the wound is severe and widespread. All patients should undergo a nutritional screening assessment so that nutritional status can be identified and the appropriate care plan and monitoring is carried out. The Malnutrition Universal Screening Tool (MUST) is recommended, and copies of this tool are available on: http://www.bapen.org.uk/must_tool.html. Patients with a ‘MUST’ score of 2 should be referred to a dietician for specialist advice. A high calorie and protein diet with or without Sip feeds may be required. It is important that ongoing monitoring using the ‘MUST’ Tool is carried out to monitor progress and nutritional status especially if patients are on Sip feeds.

5.14 Essential Nutrients for Wound Healing

Protein, Vitamin C, B Complex and A, Zinc, Iron and Copper are essential for wound healing. In addition to these nutrients, it is essential that adequate energy/calories are obtained from fats and carbohydrates to prevent tissue protein being used as a source of energy.

5.14.1 Protein – requirements: 1.2 – 2.0g protein/kg/24h

Protein is required for healing tissues. Without adequate protein normal protein synthesis and wound healing are inhibited. The immune response is diminished and there is a delay in matrix formation.
Protein sources: Meat, fish, eggs, milk, cheese, yoghurts, pulses and nuts. Nutritional sip feeds will provide important sources of protein and other nutrients if dietary intake is inadequate.

5.14.2 Energy – requirements: 30-40 Kcal/kg/24h

An adequate energy/calorie intake is essential in order to prevent dietary and tissue protein being used as a source of energy rather than for wound healing. An excessive intake of energy, leading to obesity, also gives rise to problems with wound healing – decreased mobility, increased weigh bearing and vascular insufficiency may precipitate wound complications and increase the risk of pressure sores. For obese patients during recovery from major surgical or trauma wounds, a strict weight-reducing diet during this time is inappropriate, good quality nutrition is vitally important.

It is important to remember that overweight does not necessarily mean well nourished. Malnutrition is a widespread problem which affects obese and underweight patients.

Energy sources: All foods provide energy and preserve tissue protein. Carbohydrate sources – bread, potatoes, breakfast cereal, rice and pasta, oils, spreads, butter, margarine, fried foods

Fat sources - oils, fats, butter, margarine, fried foods

5.14.3 Vitamins

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Description</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin C</td>
<td>Is required for collagen synthesis and aids iron absorption. It is not stored in the body with patients rapidly becoming deficient. Supplements may be necessary. A minimum of 60mg vitamin C. Vitamin supplements from 200mg – 1g per day are sometimes recommended however excessive doses may cause renal stones.</td>
<td>Citrus fruits and juices, blackcurrant juice drinks and fruit squashes fortified with vitamin C tomato juice, all fruit and vegetables.</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>Promotes epithelialisation and granulation of healing wounds.</td>
<td>Liver, dairy products, oily fish, carrots, dried fruits.</td>
</tr>
<tr>
<td>Vitamin B Complex</td>
<td>Co-factor for enzyme systems in protein, fat and carbohydrate metabolism.</td>
<td>Liver, kidney, meat, poultry, fortified breakfast cereals, wholemeal bread, yeast extract, eggs and green vegetables.</td>
</tr>
<tr>
<td>Vitamin K</td>
<td>Indirect role in wound healing, needed for normal blood coagulation.</td>
<td>Green vegetables, potatoes, tomatoes, liver, soya beans.</td>
</tr>
</tbody>
</table>
5.14.4 Minerals

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Description</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>Deficiency is associated with poor wound healing. Zinc is required for collagen synthesis, epithelisation and cell proliferation. Zinc supplements have been found to improve the healing of leg ulcers where zinc deficiency is identified. However, where there is no deficiency excess zinc can impair healing (Wells, 1994).</td>
<td>Liver, meat, fish, eggs, pulses including baked beans, wholegrain cereals.</td>
</tr>
<tr>
<td>Iron</td>
<td>Blood losses during injury or inadequate dietary intake, anaemia will result in decreased transport of oxygen to damaged tissue and may delay wound healing. Iron is required for collagen formation.</td>
<td>Liver, meat, poultry, oily fish, egg yolk, pulses, dried fruits.</td>
</tr>
<tr>
<td>Copper</td>
<td>Required for collagen formation and essential for red blood cells formation.</td>
<td>Meat, fish, cereals and pulses, green vegetables.</td>
</tr>
</tbody>
</table>

5.15 Fluids

Requirements 30-65ml/kg/24h. Adequate fluids are required to prevent skin dehydrated and essential with high protein diets. Fortification of foods with energy/calories and/or protein supplements can enhance the quality of the diet.

Supplementary drinks such as Build-up, Complan or Fortisips provide an important source of all nutrients if dietary intake is inadequate.

5.16 Nutritional Assessment

Identification of high risk individuals allows prompt employment of nutritional support and optimal use of resources to improve wound healing and reduce complications:-

- Medication - can interfere with all stages of wound healing e.g corticosteroids and non-steroidal anti-inflammatory medication, in particular can affect the inflammatory phase; Immunosuppressive drugs can reduce leukocyte activity which in turn dampens the inflammatory response and increases risk of infection; Cytotoxic drugs can interfere with the proliferative phase. Aspirin and anticoagulants can cause increased bleeding, interfere with haemostasis and increase risk of a haematoma.

- Age. Increasing age can dampen the inflammatory responses resulting increased risk of infection. Scar tissue in the elderly is particularly fragile and prone to damage. The elderly are also more likely to have multiple health problems.
• Smoking. The association between smoking (including a high level of passive smoking) and wound healing is well known, and is thought to be the most important risk factor for complicated wound healing. It has numerous detrimental effects including: hypoxia due to vasoconstriction and the binding of carbon monoxide to haemoglobin; introduction of toxic compounds to the blood stream; increased risk of atherosclerosis; dampened inflammatory response; reduced collagen synthesis; and increased risk of infection.

• Poor mobility / lack of exercise. Lack of mobility – particularly lack of ankle mobility – can result in lower limb oedema or venous congestion and ulceration.

• Obesity increases the risk of wound dehiscence and infection due to reduced perfusion to the wound. There is also a link between obesity and venous hypertension.

• Dressings. The use of inappropriate dressings can impair the wound healing process. For example adherent dressings can cause trauma to the wound bed and surrounding skin, interfering with granulation and epithelialisation. Dressings that allow the wound and surrounding skin to become too wet or remain in contact with wound fluid for a prolonged period can cause destruction of growth factors and granulation tissue, and maceration or excoriation of the surrounding skin; potent antiseptics can interfere with proliferation.

• Rough handling of the wound. New granulation or epithelium may be damaged if handled roughly during wound cleansing or dressing changes.

• Poor general health. Any process that interferes with general health is likely also to delay wound healing. e.g. anaemia and chronic obstructive airways disease can cause tissue hypoxia; stress causes vasoconstriction and reduced skin perfusion. The effects of radiotherapy on cells and cellular process can damage the skin and delay or prevent healing.

The details from full assessment should be recorded in the patients’ notes.

5.17 Wound Cleansing

The aim of wound cleansing is to remove gross contamination with minimal pain to the patient and minimal trauma to the tissue. Wounds should be cleaned to:-

• Remove excess exudates
• Remove slough and/or necrotic tissue
• Remove remnants of previous dressings
• To facilitate accurate assessment of the wound/wound bed
• To promote patient comfort

For healthy wounds irrigation with either a sterile solution of 0.9% sodium chloride or tap water is appropriate. For some wounds, showering is appropriate.
Foot ulcers should be kept dry until fully healed – a transparent limb-shaped plastic cover can be used to keep area dry during bathing or showering cover e.g. Seal Tight™

The irrigation fluid should be close to body temperature. Care should be taken to avoid trauma to the wound or splash back.

Repeated cleansing may do more harm than good by traumatising newly produced delicate tissue, by reducing the surface temperature of the wound and removing exudates which may have bactericidal properties.

If wiping of the peri-wound area is necessary, a non-filamented swab should be used. The wound bed itself should not be dried. Wiping the wound bed may leave fibres that could be a focal point for infection or may damage newly formed tissue.

The general use of antiseptics/disinfectants is not recommended, as these solutions have been shown to kill fibroblasts and therefore hamper the healing matrix.

5.18 Wound Infection

Wound infection is one of the commonest hospital acquired infections. Nursing staff should recognise the distinction between contamination, colonisation and infection.

Contamination is when small numbers of bacteria may be detected in a wound but their presence is transient and they are not multiplying.

In the colonised wound the levels of organisms not only increase but they have become established. An intermediate stage between colonisation and infection is also sometimes referred to as critical colonisation. This is because at the point at which an impact on wound healing may occur, there being evidence that heavy bacterial load may delay healing.

True clinical infection however is defined as the process by which organisms bind to, multiply and then invade viable tissue. These responses are visible as clinical signs and include; Localised heat, pain, swelling and erythema. There maybe purulent discharge, uncharacterised odour and increased pain. The patient may also feel unwell and have a raised or even lowered body temperature.

All clinical staff should recognise when the normal inflammatory process becomes abnormal and when it is due to infection.

5.19 Selection of Wound Dressing Product

Dressings that promote a moist environment at the wound/dressing interface should be selected.

The wound dressing product should be appropriate to meet the needs of the wound and/or promote the next stage of the wound-healing matrix, taking into account wound bed preparation tool TIME.
In wound care, accurate assessment of pain is essential with regard to choice of the most appropriate dressing. Assessment of pain before, during and after the dressing change may provide the nurse with vital information for future wound management.

Exception, patients with peripheral neuropathy who may have lost sensation and therefore not able to feel pain e.g. diabetic patients maybe unable to feel pain in the foot.

In general, pain experienced by patient although extremely subjective and variable from patient to patient falls into the following categories:-

- A deep dull constant pain
- A superficial burning type pain
- A neuralgic type pain
- An ischaemic type pain
- The pain resulting from cellulites

Whatever the cause of the pain, the patient’s perception should be acknowledged and appropriate action taken to alleviate the pain

The wound dressing should be appropriate to the type, location and size of the wound.

The wound dressing product should be acceptable to the patient, comfortable, trauma free on removal and take into consider such factors as odour and taking into account their culture and beliefs.

The wound dressing product should be used in accordance with the manufacturer’s instructions. Give consideration to the biochemical reactions of combining interactive dressing. Best practice combines the primary and secondary dressing of the same manufacture e.g. Intrasite (Smith & Nephew) Primary and Allevyn (Smith & Nephew) Secondary.

If there is leakage or strikethrough causing a break in the barrier that the dressing provides to external contamination, the dressing should be changed. If it not possible to change the dressing in a timely manner, then an appropriate physical barriers needs to be established, with application of dressing pad over area of strikethrough. If leakage or strikethrough occurs frequently it may be appropriate to re-evaluate the dressing product choice.

The effectiveness of the selected dressing product should be evaluated after one week, unless there is an adverse reaction to the dressing product. Any suspected adverse reaction from the wound dressing product should be reported via the Trust clinical incidence reporting system.

The effectiveness of the dressing product and wound assessments/ evaluations should be recorded in the patients’ records appropriate Trust documentation.

Methods for wound management should be re-assessed at each dressing change. However the following table is issued as guidance to minimise wastage of prescribed dressings as the wound changes.
### Wound Type

<table>
<thead>
<tr>
<th>Wound Type</th>
<th>Suggested duration of supply*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black/necrotic</td>
<td>7 days</td>
</tr>
<tr>
<td>Sloughy</td>
<td>7 – 10 days</td>
</tr>
<tr>
<td>Low or no exudate</td>
<td>&gt; 10 days</td>
</tr>
<tr>
<td>Medium to high exudate</td>
<td>2 – 4 weeks</td>
</tr>
<tr>
<td>Granulating</td>
<td>2 – 4 weeks</td>
</tr>
<tr>
<td>Epithelialising</td>
<td>2 – 4 weeks</td>
</tr>
</tbody>
</table>

*the amount supplied depends on the frequency of dressing changes

If a wound fails to respond to treatment then refer to a more senior colleague.

Consider referral to the Tissue Viability and Lymphoedema Service.

#### 5.20 Definition of Service

The Tissue Viability and Lymphoedema Services (TVALS) is a community based team of nurses specialising in tissue viability, wound care and lymphoedema management.

The Tissue Viability and Lymphoedema Service support patients through domiciliary visits in partnership with health and social care professionals and attendance at specialist service clinics.

#### 5.21 Aim of the Service

To provide specialist advice and education to patients, carers and all healthcare professionals in wound management, pressure ulcer prevention and management and leg ulcer management and lymphoedema management.

To maintain and develop clinical excellence in pressure ulcer prevention, lymphoedema management and wound care by informing and utilising policies, strategies, audit process and research.

#### 5.22 Quality Standard

Response time from the time the referral is received to the visit will be after discussion with the referrer and at a time convenient to the patient, referrer and TVALS Nurse in line with currently agreed key performance indicator (KPi) time scales.

#### 5.23 Information Required and Referral Contact Details

Appendix 9 - Tissue Viability and Lymphoedema Service Referral Form

Tissue Viability and Lymphoedema Services Office

Tel: 01302 796008
Fax: 01302 798080
5.24 Assessment and Treatment of Acute Wounds

Acute wounds normally heal within an expected time frame and they may heal by primary, secondary or tertiary intention.

Acute wounds should be assessed and managed using the following principles:-

- Liaise with surgical team to ensure the aims and methods of treatment are co-ordinated e.g. time span for suture removal
- Consider the wound history and presence of foreign bodies e.g. trauma wounds maybe contaminated and may require tetanus injection
- Consider the position of the wound e.g. wounds over a joint may be susceptible to stretching, wounds near in/near axilla, groin and anus may be more susceptible to infection due to warm, moist environment: the position of the wound may influence dressing choice

Surgical wounds healing by first intention, aim to promote primary wound closure, wound maybe left exposed. If patient requests cover for aesthetic reasons or to stop irritation from clothing, vapour-permeable film or island dressing.

Traumatic wounds/human/animal bites following basic first aid and follow-up referral for A&E, GP or Minor Injuries Unit requires dressing selection taking into account TIME wound assessment.

Pretibial injury – attempt to re-oppose any skin flap after through wound cleansing under the flap. Further guidance in Trusts First To Dress Initiative policy

Always consider tetanus status and possible antibiotic cover with contaminated or high risk wounds.

Pilonidal sinus care will be dictated by the procedure undertaken by the specific surgical team. For patient left to heal by secondary intention and presenting with cavity they will require daily dressing if deep or every 48 hours if shallow. The dressing chosen to pleat and fold into the cavity will depend on the results of the TIME wound assessment. Apply a secondary dressing to secure the cavity dressing, this will be bases upon the TIME wound assessment and frequency of change. Liaise with the patient’s surgical team if any doubt about specific treatment regime suggested.

Peri-anal abscess require close liaise with surgical team regarding plan of care. Irrigation of incision/cavity wound with normal saline or tap water/shower to cleanse will be requires if dressing contaminated with bowel action or urine. Modern dressing products which hasten healing in the first instances may not be used but saline soaked gauze to prevent bridging of wound and to facilitate drainage maybe used.

Burns and scalds require initial treatment to cool. For deep/extensive burns follow the advice provided by the burns unit/surgical team.

Appropriate dressings, if not referring to specialist services complete TIME wound assessment. Review the patient after 24 – 48 hours to reassess the size of the area affected and possible blistering.
5.25 **Assessment and Treatment of Chronic Wounds**

Chronic wounds fail to follow the normal model of acute wound healing, resulting in delayed or halted closure.

General principles:-

- Treatment will be based largely on managing or resolving the underlying causes
- Assess and address local barriers to wound healing using the TIME wound assessment tool
- Assess and address wider factors delaying healing

5.26 **Leg Ulcers**

A leg ulcer may be due to a number of underlying pathologies, including venous disease, arterial disease and rheumatoid arthritis, either alone or in combination.

Accurate diagnosis of the underlying cause is an essential part of management. The specific knowledge and competencies required by registered nurse who encounter patients with leg ulcers should include:-

- General assessment of the patient
- Differential diagnosis with the use of Doppler ultrasound / Vascular Assist assessment
- T.I.M.E wound assessment

Treatment priorities:-

- Identifying and address the cause of leg ulceration with differential diagnosis to assist with identification and address the underlying cause. Bandage regime as appropriate, the theory, application and management. Health promotion and preventing recurrence.
- Wound cleansing: refer to section principles of chronic wound management where the use of tap water is an appropriate cleansing agent.
- Debridement: refer to section with principles of tissue management. The presence of devitalized tissue can prevent or delay healing. When considering debridement options consideration to the underlying circulation and blood supply is essential to whether healing is a realistic goal.
- Dressing choice should be made by a registered healthcare professional and should be based on the principles of TIME assessment and consistent with patient goals (pain relief, odour).
- Whilst wound care and wound bed preparation plays an important role in the management of leg ulcers it is important to remember that wound dressing selection is supported with an appropriate bandaging regime.

5.27 **Pressure Ulcers**

Otherwise known as pressure sores, bed sores or decubitis ulcers. They are caused by: -
• Unrelieved pressure
• Shear or friction (usually a result of poor manual handling technique)
• Moisture
• or a combination of the above

The most common sites of pressure damage occur over the sacrum, hips, ischial tuberosities and the heels. However any bony prominence is a potential site. Trust policy for Pressure Ulcer Detection, Prevention and Management gives guidance.

Accurate assessment of a pressure ulcer should include:

• Grading of the pressure ulcer
• Cause (e.g. pressure, friction/shear forces, moisture)
• Location/s
• T.I.M.E wound assessment
• Pain levels

Written documentation should be supported by photographs (calibrated with a ruler) and or mappings of the wound. Reassessment and measurement should be attended at least weekly or more frequently depending upon the condition of the patient and the wound.

Treatment priorities: Identifying and addressing the cause of the Pressure Ulcer. The most important factor in managing a pressure ulcer is to identify and address the underlying cause: unrelieved pressure, shear, friction and/or moisture. This may involve one or all of the following: acquiring pressure redistributing devices or reviewing those already in use; implementing or reviewing repositioning measures; reviewing moving and handling techniques; continence assessment or reassessment; and reviewing of current skin care regime.

Wound Cleansing: refer to section principles of chronic wound management. Avoid excessive mechanical force when cleaning the wound. Gentle irrigation reduces risk of further damage and pain.

Debridement. Presence of devitalised tissue prevents complete wound assessment and can prevent or delay healing. When considering debridement options, bear in mind all goals of treatment (including patient comfort), and whether healing is a realistic goal.

If dry necrosis is present, consider the vascular and diabetic status of the patient, and whether it is safe to debride. Further involvement of the multi-disciplinary team might be required.

Dressing choice should be made by registered health care professionals (NICE, 2005) and should be based on the principles of the TIME assessment (Tissue, Inflammation/Infection, Moisture and Edges) and consistent with patient goals (i.e. pain relief/comfort, odour etc.)

Whilst wound care and wound bed-preparation plays an important role in the management of pressure ulcers it is important to remember that the dressing will
not heal the wound if the cause of the wound has not been identified and addressed.

Pressure ulcers that are healing should not be 'downgraded', e.g. a category 4 pressure sore remains a category 4 – it does not become a category 3, then a category 2, as this would fail to convey the fact that damage had occurred to underlying structural layers. Instead, it should be documented as 'a healing category 4 pressure ulcer'.

5.28 Diabetic Foot Ulcers

Diabetic patients with foot ulcers should be referred to the diabetic foot ulcer clinic at East Laithgate House for assessment as per Doncaster Diabetic guidelines, unless presenting with critical ischaemia / necrosis where urgent referral to vascular / hospital admission is required. The podiatry clinic is for all patients with diabetes with any foot problems and includes regular debridement, dressings, off-loading and insole therapy.

Guidance to determine if the Tissue Viability and Lymphoedema Services team or Podiatry Services offer advice and clinical support for wound on the foot is given in the poster Pressure ulcer or foot ulcer?

Appendix 11 – Pressure ulcer or foot ulcer?

5.28.1 Assessment of the Diabetic Foot Ulcers

All foot ulcers need to be assessed for the underlying cause and the removal of this cause is paramount for a treatment to be successful. Diabetic foot ulcers are commonly neuropathic or ischaemic and often a mixture of both.

Neuropathic ulcers are usually associated with trauma from excess pressures from footwear, deformity, callus and gait. The treatment of neuropathic ulcers requires the off loading of pressures, debridement, control of infection and specialist foot wear. The treatment of ischemic ulcers should involve vascular intervention where appropriate, off-loading when needed, specialist foot wear, very judicious debridement and infection control.

The differences between neuropathic and ischaemic ulcers:

<table>
<thead>
<tr>
<th>SIGNS &amp; SYMPTOMS</th>
<th>NEUROPATHIC</th>
<th>ISCHAEMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Commonly found on pressure points on the toes and plantar surface. Irregular with heavy callus around ulcer site with sloping edges.</td>
<td>Punched-out, undercutting, sloughy surrounded by thin glassy callus and devitalised tissue.</td>
</tr>
<tr>
<td>Deformity</td>
<td>Clawed toes, charcot foot, high arch</td>
<td>No deformity</td>
</tr>
<tr>
<td>Pain</td>
<td>Painless</td>
<td>Agony</td>
</tr>
<tr>
<td>Skin temperature</td>
<td>Warm</td>
<td>Cool</td>
</tr>
<tr>
<td>Colour</td>
<td>Normal</td>
<td>Pale, cyanotic or rubour</td>
</tr>
<tr>
<td>Tests</td>
<td>Insensitive to 10mg</td>
<td></td>
</tr>
<tr>
<td>SIGNS &amp; SYMPTOMS</td>
<td>NEUROPATHIC</td>
<td>ISCHAEMIC</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------</td>
<td>-----------</td>
</tr>
<tr>
<td>monofilament. Absent reflexes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulses</td>
<td>Palpable</td>
<td>Not palpable or weak</td>
</tr>
<tr>
<td>Callus formation</td>
<td>Commonly found on pressure points on the toes and planter surface</td>
<td>Not usually present</td>
</tr>
<tr>
<td>Ulcer sites</td>
<td>Usually associated with high pressure points on the toes and planter surfaces</td>
<td>Commonly found on the pressure points, bony prominences of toes and feet</td>
</tr>
</tbody>
</table>

5.28.2 Management of Diabetic Foot Ulcers

To optimise chances of ulcer healing, treatment will be directed at the following areas:

- Multi-disciplinary management
- Debridement
- Infection control
- Pressure relief
- Vascular control
- Glycaemic control
- Education
- Secondary ulcer prevention

5.28.3 Debridement

Debridement is thought to be essential for optimal healing rate. Callus surrounding an ulcer, together with any necrotic, non-viable tissue, should only be removed with a sterile scalpel using an aseptic technique by an appropriate healthcare professional. The debridement of ulcers using scalpel technique may not be appropriate treatment in the ischaemic foot as any trauma caused may not heal.

Debridement may also be undertaken using larvae or appropriate dressings that promote debridement.

**WARNING:** Do not attempt sharp or surgical debridement unless you have successfully completed the necessary course(s) and are qualified and competent in this skill.

In the ischaemic foot it may not be appropriate to use a debriding dressing which hydrate necrotic tissue converting it into wet gangrene. The patient’s vascular status should be assessed prior to debridement.

5.28.3.1 The Rational for Debridement

- Allows the true dimensions of an ulcer to assessed (not sure this is the right word here)
- Allows the drainage of exudates and removal of dead tissue rendering infection less likely
- Enables a deep swab to be taken
- Encourages healing by restoring a chronic wound to an acute wound

5.28.3.2 Wound Swabbing

- Should be undertaken following debridement. See Trust policy for guidance on taking a wound swab:

5.28.3.3 Wound Cleansing

- Refer to section principles of chronic wound management.
- Avoid excessive mechanical force when cleaning the wound. Gentle irrigation reduces risk of further damage and pain.

5.28.4 Dressing Selection

All dressings should provide the optimum wound healing environment and each stage of wound healing requires a specific type of dressing.

<table>
<thead>
<tr>
<th>WOUND TYPE</th>
<th>AIM OF MANAGEMENT</th>
<th>DRESSING</th>
<th>OTHER CONSIDERATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eschar</td>
<td>Rehydrate eschar</td>
<td>Hydrogels</td>
<td>Dry gangrene must not be rehydrated. In the ischemic foot it may be preferable to keep a dry eschar rather than rehydrate to cause an open ulcer.</td>
</tr>
<tr>
<td>Sloughy</td>
<td>Removal of debris from the wound bed</td>
<td>Hydrogels Cadexamer iodine Maggot Therapy</td>
<td></td>
</tr>
<tr>
<td>Infected</td>
<td>Treat infection, manage exudates and odour</td>
<td>Cadexamer iodine Silver/ Charcoal, Povidone iodine Maggot Therapy</td>
<td></td>
</tr>
<tr>
<td>Granulating</td>
<td>Create a moist environment, manage exudate</td>
<td>Alginates Foams Hydrocolloids</td>
<td></td>
</tr>
<tr>
<td>Epithelialising</td>
<td>Create a moist environment</td>
<td>Foams, Films</td>
<td></td>
</tr>
</tbody>
</table>

5.28.5 Microbiological Control

In the presence of ischaemia and neuropathy the clinical signs of infection can be diminished and so close attention to swab results must be taken. Essentially diagnosis of infection is however a clinical one. Therefore the presence of two or more signs including heat/ swelling, erythema, lymphangitis, malodour, induration, fever or other systemic symptoms, and pain should prompt treatment.

A swab should be taken from a foot ulcer if signs of infection are present, when an ulcer initially presents and if an ulcer is failing to heal. A foot ulcer showing signs of
infection should be treated with broad spectrum antibiotics until swab results are known, then antibiotic selection should be guided by results.

5.28.6 Pressure Relief

Foot ulcers are often caused by pressure. This may be due to deformity, gait or inappropriate footwear. When dressing a wound, deflective padding, insoles, footwear and casts must be considered to redistribute pressure away from ulceration and so allow healing.

- Semi-compression felt – this adhesive-backed padding may be cut to the shape of the foot to deflect pressure away from an area so as to encourage healing to take place.
- Insoles – to redistribute plantar pressures away from plantar ulcers and also provide suitable cushioning. They may need to be accommodated in bespoke shoes or extra-depth stock shoes.
- Temporary Footwear – may be required to accommodate dressings, insoles or deformity to offload pressure form ulcerated sites.
- Bespoke footwear – to accommodate deformity. Incorporated moulded insoles will remove pressure from vulnerable areas to allow ulcers to heal and reduce the risk of further ulceration occurring.
- Air Casts – lightweight removable plastic casts lined with air cells that are inflated with a hand bulb to a total contact fit, reducing plantar pressures by spreading weight bearing to a larger area.
- These casts limit joint mobility, have plasterzote (polyethylene foam) insoles which cushion and rocker bottom sole to reduce pressure through the plantar surface during gait insoles, which cushion the foot, as well as a rocker-bottom sole to reduce pressure through the plantar surface during gait.
- Casting (Below-Knee Cast / Scotch Cast Boot) – fibreglass casts used to minimise peak plantar pressures to aid healing of plantar ulcers.

5.29 Vascular Control

Those patients with ischaemic and neuro-ischaemic ulcers should be referred on to a vascular consultant for further assessment and management. The vascular status of the feet should be assessed with the use of a hand-held Doppler. A bi-phasic signal is considered to be 'normal' though there may be some degree of arterial obstruction. A mono-phasic signal signifies a moderate to severe degree of ischaemia. The ankle brachial pressure index can be taken and results assessed (Refer to Doppler section in the Leg Ulcer Policy). If difficulties with obtaining Doppler APBi should trigger referral to TVOS for Vascular Assist assessment.

<table>
<thead>
<tr>
<th>Value</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;1.3</td>
<td>Arterial calcification</td>
</tr>
<tr>
<td>0.8-1.3</td>
<td>Normal</td>
</tr>
<tr>
<td>0.5-0.8</td>
<td>Significant arterial disease</td>
</tr>
<tr>
<td>&lt;0.5</td>
<td>Critical limb ischaemia</td>
</tr>
</tbody>
</table>
5.30 Glycaemic Control

Wound healing is impaired by hyperglycaemia; therefore blood glucose must be controlled as tightly as possible. Patients with poor glycaemia control must be referred to their Diabetologist, Diabetic Specialist Nurse, or GP to address this problem.

5.31 Educational Control

Patients must be provided with information that will help optimise the conditions for healing. This includes signs of deterioration, what to do if the ulceration deteriorates and contact telephone numbers.

5.32 Secondary Ulcer Prevention

Once an ulcer has healed the risk of further ulceration must be minimised. This can be done through;


- Ensuring footwear is appropriate. This may require the provision of specialist foot wear from the orthotics department.
- Education on foot care.
- Education on what “danger signs” to look for and who and how to contact the Podiatry service if a problem develops.

5.33 Skin Cancers/Fungating Wounds

There are a number of different skin cancers that may arise, these include:

- Basel Cell Carcinoma (sometimes referred to as a Rodent Ulcer)
- Squamous cell carcinoma
- Marjolins ulcer (where squamous cell carcinoma has developed within a chronic wound such as a leg ulcer)
- Malignant Melanoma
- Kaposi’s Sarcoma (usually associated with AIDS)
- Lymphomas

Diagnosis is made following histopathological examination, which involves taking a biopsy of the lesion under local anaesthetic. This can be performed in some community health centres or within a dermatology outpatient department.

The key characteristics to look for include:-
- An unknown cause of a wound
- A wound that fails to heal within the normal expected time frame
- A mole, growth or patch of skin that has undergone some change in regards to size, shape or colour. In particular moles that are asymmetrical in appearance, where the edges are irregular, jagged or blurred, where the colour is uneven or when the diameter is greater than 6mm.
- A wound that appears at an unusual site (e.g. a leg ulcer that presents on the calf)
- An ulcer that develops within the scar of an old burn.
- A defined circular patch of dry scaly skin, mole or growth that bleeds easily and fails to heal
- Granulation tissue that is pronounced, appears translucent or shiny or rolls over the wound margins
- A wound that goes through cycles of healing and then breaks down again for no obvious reason.

5.34 Management

If a skin cancer is suspected, referral to a specialist GP or dermatology team should be made as soon as possible, in order to maximise the potential for early diagnosis and less invasive treatments.

Malignant melanoma (MM) is the most dangerous skin tumour and any patients with suspected MM can be referred by their GP or Consultant on the in-patient areas.

The type of cancer and how widespread it is will determine the course of treatment prescribed; this may range from cryosurgery or radiotherapy, to more extensive excision and skin grafting. Aftercare (i.e. wound care) is likely to be shared between primary and secondary care.

5.35 Dressing Choice

One likely problem with managing a skin cancer is possibly is that the wound may be located in an awkward or obvious site, such as on the face or head.

Dressing selection will still depend upon the TIME framework. However other factors to consider are the sensitivity of the skin, how a dressing will be held in place and how to make it appear as inconspicuous as possible. Some products that may be particularly useful will include:

- Soft silicone dressings
- Thin (adhesive) foam or hydrocolloid dressings
- Tubular cotton bandages
5.36 Fungating Wounds

A fungating wound is a cancerous lesion, either primary or metastatic, that infiltrates the skin and its blood and lymphatic vessels. Unless the tumour can be treated it will continue to fungate, causing extensive damage to the tissues, often forming nodules – cauliflower-like ulcerated wounds and sinuses or fistulas.

These may involve other organs such as the bowel, bladder and buccal cavity. Due to the rapid and destructive character of these wounds and the nature of the symptoms associated, the impact on the patient and their family can be devastating.

5.37 Priorities of Care

Ensure your patient has been reviewed by an oncology team.

If options for any form of curative treatment have been exhausted excellent symptom control (based on the patient’s needs) becomes the main concern.

Whilst wound assessment, management and evaluation of a fungating wound is essentially governed by the same principles of chronic wound management, there are some specific problems related to the management of these wounds and healing is unlikely to be an attainable goal.

The most common problems associated with managing a fungating wound are:-

- Pain
- Exudate
- Malodour
- Bleeding
- Psycho/social issues

5.38 Pain Management

Assessment is the first step for successful pain management. Reassessment should occur on a regular basis i.e. at each dressing change.

Pain may be nociceptive (e.g. due to dressing changes, poor dressing choice, wound exposure) or neuropathic (e.g. due to nerve dysfunction caused by the presence of the tumour).

The type of analgesia and adjuvant therapy and how it is administered will depend upon the type and severity of pain experienced.

Non-adherent dressings (soft silicone) combined with some form of absorbent dressing will help reduce pain at dressing changes and potentially enable a reduction in the frequency of changes (however the patient may feel more comfortable with more frequent changes).

Consider referral to the palliative care team for further specialist advice on pain management if this is proving difficult to control.
5.39 **Exudate Control**

Exudate control is important in terms of comfort, odour and prevention of maceration and excoriation to the surrounding skin.

A stoma pouch may be useful for smaller fungating wounds. Consider involving a stoma specialist nurse to help assess and advise on the appropriateness of this approach.

Suitable absorbent dressings may include hydrofibres, alginates and foams or non-adherent dressings with absorbent pads.

Consider use of skin barrier films/creams such as Cavilon (3M) to protect the surrounding skin.

Assess exudate-handling capabilities of dressings at each dressing change and consider with the patient if the dressing or frequency of dressings needs to be reviewed.

5.40 **Odour Control**

Odour is often related to the presence of sloughy or necrotic tissue, which often leads to an increased bacterial burden further contributing to problems with odour.

The most effective means of resolving odour is to treat the cause by means of debridement and/or reduction of bacterial burden. However, these actions may or may not be possible or appropriate for every patient.

Debridement is likely to be an ongoing maintenance issue and the benefits of debridement need to be carefully weighed up when deciding how best to manage the problem of removing dead tissue.

Autolytic debridement (i.e. maintaining a moist wound environment) is likely to be the most appropriate method utilising hydrogels or hydrocolloids (for dry wounds), hydrofibres, alginates and polysaccharide beads (for wet wounds). Honey dressings may also prove to be useful, but be aware that this may increase pain.

In regards to reducing bacterial levels there are several options:

- **Systemic antibiotic therapy.** However, additional unpleasant side effects such as gastrointestinal disturbance and problems related to resistance need to be weighed up. A longer-term prophylactic dose may still enable odour control without the unwanted side effects.

- **Topical antibacterial** such as metronidazole gel may be appropriate, though keeping the gel in place and the quantities required to control the problem may pose issues.

- **Antiseptic dressings** (e.g. silver which is available in many forms from creams to hydrofibres and foams, inadine and honey). Always bear in mind potential for pain to increase with antiseptic dressings.
Odour can also be masked by use of charcoal dressings, regular dressing changes, well sealed/contained dressings and use of deodorisers or essential oils applied to the outer layers of dressings.

5.41 Bleeding

Bleeding is a common problem with fungating wounds due to the fragile vasculature and is often triggered by trauma to the wound during dressing changes, though can also occur spontaneously.

Bleeding may require emergency medical treatment (such as topical adrenaline, radiotherapy or oral antifibrinolytics) so keeping open lines of communication between the patient and their oncology team is important.

Obviously preventing bleeding is a key goal. This can hopefully be achieved by:

- Careful dressing application and removal
- Maintaining a warm moist wound bed
- Gentle cleansing techniques

5.42 Psychosocial Issues

The psychosocial effects of a fungating wound cannot be over emphasized enough. Your patient has to deal with many issues such as deteriorating health, altered body image, perhaps having to give up work leading to financial worries, relationships may be affected, and they may not even feel comfortable to leave their house.

Aside from the unpleasant symptoms of these wounds, the wound acts as a constant reminder of the presence of the cancer and their likely poor prognosis.

Set realistic goals with the patient, based on their experience of the situation.

Involve the patient’s family, friends and carers according to their wishes. This support can be immensely valuable, although some patients or their family/ friends may not yet be ready to openly share or deal with the situation.

Effective communication skills are vital to ensure the patient and their family/carers have a good understanding of the aims of treatment and can participate in planning or providing treatment, and are aware of any progress or deterioration.

The involvement of the multidisciplinary team is important to ensure all of the patient’s physical and psychological needs are met during this difficult time. Bear in mind, however, that when dealing with such a sensitive problem, patients may find it much easier to interact with only a small number of trusted people to guide and provide care. When planning the most appropriate treatment with your patient any decisions made needs to demonstrate a careful balance between the risk of side effects and the quality of life gained.
5.43 Pain Management

Pain is a complex phenomenon and is beyond the scope of this policy to cover in any depth. Please refer to the EWMA position document - Pain at wound dressing changes at http://www.ewma.org/english/englishhtm for further guidance on this topic.

Evidence suggests that the presence of severe levels of pain can contribute to poor wound healing and that appropriate management is essential.

The first step to successful pain management is thorough assessment of the patient's pain. Information relating to the:

- Site
- Frequency of occurrence
- Type
- Severity
- Relieving or Exacerbating Factors
- Present analgesia and frequency of administration

Will help identify the likely cause of the pain and how to best manage it. Management may be pharmacological and / or non-pharmacological.

The WHO pain ladder; http://www.who.int/cancer/palliative/painladder/en/ can be used to guide choice of appropriate analgesia. Additional adjuvant therapies may be required (e.g NSAIDs where inflammatory pain presents; or amitriptyline or gabapentine for neuropathic pain). The use of local anaesthetic may also be appropriate in some settings.

5.44 The Evaluation of Products and Conducts of Company Representatives - Product Evaluation

The rate and development of new products associated with wound management has led to a very confusing array of products now available to treat wounds. The selection of products for Doncaster District Formulary has followed a structured review process. The introduction of further products should also follow such a process.

The evaluation of new products should be agreed by the Clinical Nurses Specialist Tissue Viability and be carried in a specific location in evaluation against current formulary products.

The introduction of new products not on formulary or in an existing category should have their value in improving patient care evaluated before adoption into the formulary.

The evaluation and comparator product should be agreed between the company the CNS Tissue Viability and the nurses requesting the evaluation. The company requesting the evaluation will be required to provide all products associated with the evaluation as no extra costs should fall on Doncaster Community Integrated Services
5.45 Company Representatives

The conduct of company representatives is governed by the SDMA – Code of Practice for Promotion of Surgical Dressings to Healthcare Professionals 3rd Edition January 2008 code of conduct.

All companies should only demonstrate products that are included in Doncaster District Formulary. The evaluation of new products should follow the process above.

Company reps wishing to carry out small scale local evaluations are to be referred to the CNS Tissue Viability.

Samples of dressings are not to be used on patients unless they are part of a formal evaluation under the direction of CNS Tissue Viability.

6. TRAINING IMPLICATIONS

Educational programmes for the dressing selection and wound management will be structured, organised and comprehensive and made available at all levels of health care providers, service users, and family and care givers. Details of sessions available through the Trust’s training and development programme.

7. MONITORING ARRANGEMENTS

<table>
<thead>
<tr>
<th>Area for monitoring</th>
<th>How</th>
<th>Who by</th>
<th>Reported to</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safeguard IR1</td>
<td>Number of IR1 reports</td>
<td>Matrons Nursing Staff CNS in Tissue Viability</td>
<td>Business Divisions</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

8. EQUALITY IMPACT ASSESSMENT SCREENING

The completed Equality Impact Assessment for this Policy has been published on the Equality and Diversity webpage of the RDaSH website [click here](#).

8.1 Privacy, Dignity and Respect

The NHS Constitution states that all patients should feel that their privacy and dignity are respected while they are in hospital. High Quality Care for All (2008), Lord Darzi’s review of the NHS, identifies the need to organize care around the individual, ‘not just clinically but in terms of dignity and respect’.

As a consequence the Trust is required to articulate its intent to deliver care with privacy and dignity that treats all service users with respect. Therefore, all procedural documents will be considered, if relevant, to reflect the requirement to treat everyone with privacy, dignity and respect, (when appropriate this should also include how same sex accommodation is provided).

Indicate how this will be met

There is no requirement for additional consideration to be given with regard to privacy, dignity or respect.
8.2 Mental Capacity Act

Central to any aspect of care delivered to adults and young people aged 16 years or over will be the consideration of the individuals capacity to participate in the decision making process. Consequently, no intervention should be carried out without either the individuals informed consent, or the powers included in a legal framework, or by order of the Court.

Therefore, the Trust is required to make sure that all staff working with individuals who use our service are familiar with the provisions within the Mental Capacity Act. For this reason all procedural documents will be considered, if relevant to reflect the provisions of the Mental Capacity Act 2005 to ensure that the interests of an individual whose capacity is in question can continue to make as many decisions for themselves as possible.

Indicate How This Will Be Achieved.

All individuals involved in the implementation of this policy should do so in accordance with the Guiding Principles of the Mental Capacity Act 2005. (Section 1)

9. LINKS TO OTHER TRUST PROCEDURAL DOCUMENTS

Most recent edition of Royal Marsden NHS Trust Manual of Clinical Procedures

- Wound Management Policy
- Doncaster District Formulary
- Infection Prevention and Control Policy
- Trust Policy on Consent
- Latest Version of British National Formulary

10. REFERENCES

- Data on file: Submitted evidence from the Ministry Of Justice DarEl-Eftaa regarding the use of hydrocolloid dressing products

• Dowsett C (2009) Use of TIME Wounds UK 5(3) 14-21


• Gray D et.al. (2011) Consenus guidance for the use of debridement techniques in the UK Wounds UK Vol 7 No1 77 -84


• Mahoney K (2015) Using antimicrobials for wound infection and biofilm Wounds Essentials Vol 10 No 1 44-50


• NICE (2014) The Debrisoft Monofilament Debridement pad for use in acute and chronic wounds (MTG17) NICE London


• Rafter L (2012) Debridement of a traumatic haematoma using larval therapy Wound UK 8(1)81 -88


• Sibbald RG. Wood, Ayello E (2007) Increased bacterial burden and infection wounds UK 3 (2) 25-46


• Sperring B, Barker R (2014) Ten top tips for taking high-quality digital images of wounds Wounds Essentials 9 (2) 62 -64

• Vowden P (2011) Hard-to-heal wounds: made easy Wounds International vol2 issue 4


• National Institute for Clinical Excellence – Guidance on the use of debriding agents and specialist wound care clinics for difficult to heal surgical wounds (2001)

• NICE Infection control – prevention of healthcare associated infections in primary and community care (2003)

• NMC – Record keeping (2007)

• NMC – Code of Professional Practice (2008)

• Latest version of British National Formulary

11. APPENDICES

Appendix 1 Doncaster District Woundcare Formulary
Appendix 2 Non Formulary Request Proforma
Appendix 3 Wound Management Guideline with TIME
Appendix 4 TIME is money
Appendix 5 Larval therapy ordering guide
Appendix 6 Application and daily care of Bio Bag Larval therapy
Appendix 7 Application and daily care of Larval Therapy
Appendix 8 Patient and Carer Guide to Larval Therapy
Appendix 9 Tissue Viability and Lymphoedema Services referral form
Appendix 10 Pressure Ulcer or Foot Ulcer Poster
DONCASTER DISTRICT WOUNDCARE FORMULARY 2015-2017
ASSOCIATED POLICIES

This Formulary should be used in conjunction with organisations’

- ‘Wound Care Policy’
- ‘Aseptic Technique & Aseptic Non-Touch Technique Policy’
- ‘Hand Hygiene Policy’
- ‘Standard Infection Prevention and Control Precautions Policy’
- ‘Waste Management Policy’

REVIEW GROUP

Stephen Davies (Chief Pharmacist RDaSH)
Sue Johnson (Lead Nurse, Wound Care DBHFT)
Tracy Vernon (Lead Nurse, Tissue Viability DBHFT)
Dawne Squires (Clinical Nurse Specialist, Tissue Viability RDaSH)
Maggie Gallagher (Team Leader)
Lynne Crawford (District Nurse, CPE)
Fiona Rawes (Diabetic Team Lead, Podiatry RDaSH)

Additional contribution from
Emma Stables – Senior Clinical Nurse Specialist, Infection Prevention and Control
Debra Eyre – Infection Prevention & Control Nurse Specialist Doncaster CCG
Wendy Feirn – Head of Infection Prevention & Control Doncaster CCG

NOTE:
This formulary is to be used to inform the initiation of dressings in the community and guide dressing selection when a patient has moved from secondary care to primary care. Particular dressings may be initiated in secondary care however they may be swapped to an equivalent in primary care (these equivalences are identified through the formulary).
## CONTENTS

<table>
<thead>
<tr>
<th>General Information</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound assessment</td>
<td>5</td>
</tr>
<tr>
<td>Diabetic foot ulcers</td>
<td>6</td>
</tr>
<tr>
<td>Infection prevention &amp; control</td>
<td>7</td>
</tr>
<tr>
<td>Debridement</td>
<td>9</td>
</tr>
<tr>
<td>Restricted items</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specific scenarios</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonisation and clinical infection</td>
<td>10</td>
</tr>
<tr>
<td>Necrotic wounds</td>
<td>11</td>
</tr>
<tr>
<td>Sloughy wounds</td>
<td>12</td>
</tr>
<tr>
<td>Granulating wounds</td>
<td>13</td>
</tr>
<tr>
<td>Epithelialising wounds</td>
<td>14</td>
</tr>
<tr>
<td>Malodorous and fungating wounds</td>
<td>15</td>
</tr>
<tr>
<td>Other wound products</td>
<td>16</td>
</tr>
</tbody>
</table>

Practitioners should refer to The Wound Care Handbook for specific product characteristics
www.woundcarehandbook.com/
WOUND ASSESSMENT

Holistic wound assessment should be:

- Patient centered.
- Accurate and precise.
- Detect the presence of complications e.g. infection
- Detect general patient factors which may delay healing e.g. nutritional status, diabetes, chronic infection and concomitant medication e.g. steroids.
- Able to provide a framework to monitor the stages of wound healing.
- Evaluate the effectiveness of any treatment.

Local wound assessment Must take into account:

- Type and location of wound
- Stage of healing – using recognised scale e.g. pressure ulcer category 1 to 4, including ungraded
- Wound dimensions – length, width, depth, position/extent of sinuses, undermining of surrounding skin, using one of the following methods.
- Measurement should be carried out at intervals in line with organisational policy
- Cover the wound with a sterile transparent film and measure the maximum length and width
- Use a disposal paper tape to record maximum length and width
- Use a tracing chart to draw and record the entire wound area
- Use a sterile measuring probe to measure depth and extent of undermining
- Photography is a useful way of measuring when incorporating a rule or tape into the photograph so scale can be provided (rulers are available in dressing packs)
- Guidance for obtaining consent and storage of photographs are available in the Trust Policy on Consent.
- Wounds should be assessed for any local barriers to healing, and the results documented at each dressing change using the following assessment tool:

The T.I.M.E acronym is a summary of the principles of wound bed preparation. It can be used as an aide-memoir to guide practice, heal wounds quickly and help your patients have a more comfortable path to healing.

<table>
<thead>
<tr>
<th>Wound Factors</th>
<th>Clinical Action</th>
<th>Wound Healing Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>T Tissue non-viable necrotic tissue or slough present</td>
<td>Remove defective tissue debride if indicated</td>
<td>Viable (vascularised) wound bed</td>
</tr>
<tr>
<td>I Inflammation and/or infection increased exudates, surface discolouration or increased odour</td>
<td>Remove or reduce bacterial load antimicrobial dressings debridement of devitalised tissue</td>
<td>Reduced bacterial burden and inflammation</td>
</tr>
<tr>
<td>M Moisture imbalance Heavy exudate – risk of maceration. Dry wound bed – risk of desiccation</td>
<td>Restore moisture balance absorb exudate, or add moisture to dry wounds</td>
<td>Optimal moisture balance</td>
</tr>
<tr>
<td>E Edge of wound non-advancing / Or undermining e.g. chronic wound with prolonged inflammation</td>
<td>Reassess T, I and M if no longer an issue consider alternative therapies to promote healing</td>
<td>Restoration of appropriate pH level and cell migration to advance wound edge if wound continues to be static after 2-4 weeks reassess intervention or refer for specialist treatment</td>
</tr>
</tbody>
</table>

WARNING: Do not attempt to re-hydrate dry necrosis in a diabetic or ischaemic wound or where the underlying aetiology is unknown, as this may encourage a ‘wet spreading’ gangrene. Keep the wound dry and appropriately dressed. Refer urgently to
• Podiatry where there is a diabetic origin
• Vascular specialist where there is an ischaemic origin
• Tissue Viability Outreach Services (TVOS) for unknown aetiology

For healthy wounds, irrigation with either a sterile solution of 0.9% sodium chloride or tap water close to body temperature is appropriate. For some wounds, showering is appropriate.

Foot ulcers should be kept dry until fully healed. Dependent on clinical condition a waterproof occlusive dressing or a waterproof protector may be used.

**DIABETIC FOOT ULCERS**

Diabetic patients with foot ulcers should be referred to the diabetic foot ulcer clinic at East Laith Gate House for assessment as per Doncaster Diabetic guidelines, unless presenting with critical ischaemia / necrosis where urgent referral to vascular / hospital admission is required. The podiatry clinic is for all patients with diabetes with any foot problems and includes regular debridement, dressings, offloading and insole therapy.

**Assessment of the Diabetic Foot Ulcers**

All foot ulcers need to be assessed for the underlying cause and the removal of this cause (diabetes) some causes cannot be removed i.e. diabetes! is paramount for a treatment to be successful. Diabetic foot ulcers are commonly neuropathic or ischaemic however can be a mixture of both.

Neuropathic ulcers are usually associated with trauma from excess pressure from footwear, deformity, callus and gait. The treatment of neuropathic ulcers requires the off-loading of pressure, debridement, prevention and /or control of infection and specialist foot wear. The treatment for ischaemic ulcers should involve vascular intervention where appropriate off-loading when needed, specialist foot wear, very judicious debridement and prevention and/or control of infection

The differences between neuropathic and ischaemic ulcers:

<table>
<thead>
<tr>
<th>SIGNS &amp; SYMPTOMS</th>
<th>NEUROPATHIC</th>
<th>ISCHAEMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Commonly found on pressure points on the toes and plantar surface. Often irregular with heavy callus around ulcer site with sloping edges. Can be sloughy</td>
<td>Punched-out, undercutting, sloughy surrounded by thin glassy callus and devitalised tissue</td>
</tr>
<tr>
<td>Deformity</td>
<td>Clawed toes, Charcot foot, high arch</td>
<td>No deformity</td>
</tr>
<tr>
<td>Pain</td>
<td>Painless</td>
<td>Agony</td>
</tr>
<tr>
<td>Skin temperature</td>
<td>Warm</td>
<td>Cool</td>
</tr>
<tr>
<td>Colour</td>
<td>Normal</td>
<td>Pale, cyanotic or rubour</td>
</tr>
<tr>
<td>Tests</td>
<td>Insensitive/diminished response to 10mg monofilament. Neurontip, temperature discrimination and reduced or absent reflexes</td>
<td>Doppler assessment for wave formation. ABPI for vascular status</td>
</tr>
<tr>
<td>Pulses</td>
<td>Palpable</td>
<td>Not palpable or weak</td>
</tr>
<tr>
<td>Callus formation</td>
<td>Commonly found on pressure weight bearing areas</td>
<td>Commonly found on the pressure points e.g., bony prominences of toes and borders of feet</td>
</tr>
<tr>
<td>Ulcer sites</td>
<td>Usually associated with high pressure points on the toes and planter surfaces</td>
<td>Commonly found on the pressure points, bony prominences of toes and feet</td>
</tr>
</tbody>
</table>
Management of Diabetic Foot Ulcers

To optimise chances of ulcer healing, treatment will be directed at the following areas:

- Multi-disciplinary management
- Debridement
- Prevention and/or control of Infection
- Pressure relief
- Vascular control
- Glycaemic control
- Education
- Secondary ulcer prevention

**INFECTION PREVENTION & CONTROL IN WOUND CARE**

Healthcare associated infection may cause increased morbidity and mortality. Healthcare resources are finite. Antimicrobial resistance continues to increase; therefore the management of any wound must be optimal.

For more extant guidance refer to organisational policies and NMC Minimum Professional Standards

**WOUND CLEANSING**

The aim of wound cleansing is the removal of gross contamination with minimal pain to the patient and minimal trauma to the tissue.

- Wound cleansing will:
  - Remove excess exudate
  - Remove slough and/or necrotic tissue
  - Remove remnants of previous dressings
  - Facilitate accurate assessment of the wound/wound bed
  - Promote patient comfort
  - For healthy wounds irrigation with either a sterile solution of 0.9% sodium chloride or tap water is appropriate. For some wounds, showering is appropriate. **Foot ulcers should be kept dry until fully healed. Dependent on clinical condition a waterproof occlusive dressing or waterproof protector may be used.**
  - The irrigation fluid should be close to body temperature. Care should be taken to avoid trauma to the wound or splash back.
  - Repeated cleaning may do more harm than good by causing trauma to newly produced delicate tissue by reducing the surface temperature of the wound and removing exudates which may have bactericidal properties.
  - If wiping of the peri-wound area is necessary, a non-filamented swab must be used. The wound bed itself should not be dried. Wiping the wound bed may leave fibres that could be a focal point for infection or may damage newly formed tissue.
  - The general use of antiseptics/disinfectants is not recommended, as these solutions have been shown to kill fibroblasts and therefore hamper the healing matrix.
  - A waterproof protector may be used to keep dressings dry when showering or bathing. They should be removed and the exposed skin cleansed and if appropriate dried with the cool setting of a hair dryer.

**WOUND INFECTION**

Wound infection is one of the commonest healthcare associated infections. Nursing staff must recognise the distinction between contamination, colonisation and infection.
• All clinical staff must recognise when the normal inflammatory process becomes abnormal and when it is due to infection.

• Contamination is when small numbers of bacteria may be detected in a wound but their presence is transient and they are not multiplying.

• In the colonised wound the levels of organisms not only increase but they have become established. An intermediate stage between colonisation and infection is also sometimes referred to as critical colonisation. This is because at the point at which an impact on wound healing may occur, there is evidence that heavy bacterial load infection may delay healing.

• True clinical infection however is defined as the process by which organisms bind to, multiply and then invade viable tissue. These responses are visible as clinical signs/symptoms and include; localised heat, pain, swelling and erythema. There may also be purulent discharge and uncharacteristic odour. The patient may also feel unwell and have a raised or even lowered body temperature.

<table>
<thead>
<tr>
<th>The infection continuum (adapted from Kingsley, 2001; WUWHS, 2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>Contaminated</td>
</tr>
<tr>
<td>Colonised</td>
</tr>
<tr>
<td>Critically colonised/localised infection</td>
</tr>
<tr>
<td>Spreading/systemic infection</td>
</tr>
</tbody>
</table>

Critically colonised/localised wound - management pathway

1. Is the wound critically colonised/locally infected (see table above)
2. Use a topical antimicrobial dressing
3. Review process
   • Review the wound at each dressing change and after 2 weeks. Provide a full rationale in the patient’s records as to why you have continued/discontinued treatment

Spreading/systemic wound infection - management pathway

1. Is the wound showing signs of spreading/systemic infection (see table above)
2. Use a topical antimicrobial dressing
   • Follow the protocol for wound swabbing
   • Ensure antibiotic therapy complies with the local formulary [see page 9]. If not, seek advice from a medical microbiologist.
3. Review process
• If the wound fails to progress or deteriorates, refer for specialist advice and consider the pathway for spreading/systemic infection

4. **Discontinue treatment**
   Consider this, if there has been:
   • A reduction in wound dimensions?
   • A reduction in exudate levels?
   • A reduction in pain?

5. Once bio-burden is under control and the wound is improving, a non-antimicrobial dressing should be considered.

6. Document the full rationale in the patient’s record

7. **Review the wound at each dressing change and at 7 days post antibiotic initiation. Is the wound still showing two or more signs of infection?**
   • If yes, check the following:
     o Review the wound using TIME or another appropriate framework
     o Is there an appropriate level of compression?
     o Is the wound management appropriate?
   • If yes, document the full rationale in the nursing notes and consider a further 7 days of antibiotics.

4. If, after 10 days of antibiotic treatment, there is no improvement, refer to the tissue viability team/Microbiologist

---

**OBTAINING A BACTERIAL SPECIMEN**

Swabbing should only be done in exceptional circumstances, where there are signs and symptoms that may indicate an infection and only after referral to an experienced colleague.

When obtaining a specimen

- The healthcare worker must ensure that they wash their hands prior to and following the procedure.
- The healthcare worker must carry out a risk assessment on the appropriateness of personal protective equipment required, and ensure that they use the PPE.
- If there is pus present where possible obtain a sample by aspirating the wound with a syringe.
- If the wound is dry and a dry swab is being used then it should be moistened with sterile saline; the swab should be wiped over the wound using a zig-zag motion.
- The specimen should be carefully labeled with all relevant information.
- The specimen should be sent to the laboratory as soon as possible in order to yield a good result.

---

**DEBRIDEMENT**

Debridement is thought to be essential for optimal healing. Callus surrounding an ulcer, together with non-viable tissue, should be removed with a sterile scalpel using an aseptic technique by an appropriately skilled/knowledgeable healthcare professional.

NB: The debridement of ulcers using scalpel technique may not be appropriate treatment in the ischaemic foot as any trauma caused may not heal.

Debridement may also be undertaken using larvae, Debrisoft or appropriate dressings that promote debridement.

**WARNING:** Do not attempt sharp or surgical debridement unless you have successfully completed the necessary course(s) and are qualified and competent in this skill.

---

**RESTRICTED PRODUCTS**

Initiation of the following products is RESTRICTED. These products may be initiated under specialist advice ONLY from the Tissue Viability Nursing Service.

- Kendall AMD Antimicrobial Foam
- Actilite
- Debrisoft
- Flaminal Forte or Hydro
- Larvae therapy
- Promogran / Prisma
- T.N.P. Therapy (Venturi / VAC / PICO)
- Vibropulse

**COLONISATION & CLINICAL INFECTION**

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Product</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exudate</td>
<td>Acticoat Flex 3 or 7</td>
<td>Change dressing at strike through</td>
</tr>
<tr>
<td></td>
<td>Allevyn Life (except plantar ulcers)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Biatain (Plantar ulcers ONLY)</td>
<td></td>
</tr>
<tr>
<td>Heavy Exudate</td>
<td>Durafiber</td>
<td>Change dressing at strike through</td>
</tr>
<tr>
<td></td>
<td>Allevyn Life</td>
<td></td>
</tr>
<tr>
<td>Odour</td>
<td>Acticoat Flex 3 or 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allevyn Life</td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>Acticoat Flex 3 or 7</td>
<td>Use of analgesia prior to dressing change + usual pain management.</td>
</tr>
<tr>
<td></td>
<td>Allevyn Life</td>
<td></td>
</tr>
<tr>
<td>Foot</td>
<td>Acticoat Flex 3 or 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allevyn Life (except plantar ulcers)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Biatain (Plantar ulcers ONLY)</td>
<td></td>
</tr>
</tbody>
</table>

**Oral antibiotics**

Ulcers are always colonized and antibiotics do not improve healing unless there is an active infection (see page 7).

If there are signs of an active infection, send pre-treatment swab (see page 8) and ALWAYS review antibiotics after culture results.

Compliance with antibiotics should be confirmed at each dressing change.

<table>
<thead>
<tr>
<th>Product and adult dose</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-MRSA</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; line Flucloxacillin - 500mg four times a day</td>
</tr>
<tr>
<td></td>
<td><em>Beware penicillin allergy</em></td>
</tr>
<tr>
<td></td>
<td>If <em>penicillin allergy</em> Clarithromycin 500mg twice a day</td>
</tr>
<tr>
<td>MRSA colonised</td>
<td>Doxycycline 100mg twice a day</td>
</tr>
<tr>
<td>MRSA confirmed by lab results, infection not severe and admission not required</td>
<td>Clindamycin 300mg four times a day</td>
</tr>
</tbody>
</table>

Course length is usually 7 days. Re-assess for progress at 7 days and the need to continue for a further 7 days.

Use antibiotic sensitivities to guide treatment. Course length is 7 days. **Stop if diarrhoea.**

If severe infection or no response to monotherapy after 24-48 hours, seek advice from microbiologist.

*Source data: Doncaster and Bassetlaw Antimicrobial Guidance for Primary Care 2013*

*Health Protection Agency Management of infection guidance for primary care*
Other considerations

Refer to a tissue viability team or consultant medical microbiologist if there is no resolution in

- Infected wound – after 10 days post antibiotic initiation or
- Critically colonised wound – after 14 days treatment

MRSA infected wounds - consider Larvae therapy

### NECROTIC WOUNDS

<table>
<thead>
<tr>
<th>Characterised by:</th>
<th>Aim of treatment:</th>
</tr>
</thead>
</table>
| • Presence of dead or de-vitalised tissue Black/Brown colouration  
  • Wound will not heal until necrotic tissue is removed | • Hydration of wound.  
  • **DO NOT HYDRATE BELOW KNEE WOUNDS UNLESS CIRCULATION HAS BEEN DETERMINED**  
  • Removal of necrotic tissue |

The dressings listed below are the preferred dressings for each of their respective type. This is not to say that choice is restricted to these only, however they should be considered and discounted before an alternative is used

<table>
<thead>
<tr>
<th>SHALLOW</th>
<th>CAVITY</th>
<th>COMMENT</th>
</tr>
</thead>
</table>
| **Debridement** | **Primary dressing**  
  Hydrogel:  
  Intrasite Gel  
  Intrasite Conformable Purilon¹ | **Primary dressing**  
  Hydrogel:  
  Intrasite Gel  
  Intrasite Conformable Purilon¹ |
| **Secondary dressing**  
  Film: C-view (hospital)  
  Tegaderm (community) | **Secondary dressing**  
  Film: C-view (hospital)  
  Tegaderm (community) |
| **Exudate Management** | **Primary dressing**  
  As above | **Primary dressing**  
  As above |
| **Secondary dressing**  
  Foam : Allevyn Life | **Secondary dressing**  
  Foam : Allevyn Life |
| **Colonisation / infection** | See page 10 |

1. **Purilon** should only be used as a preparatory treatment for larvae therapy

- Mixed wounds should be treated as per predominant wound type.
- Failure of the wound to respond to treatment within 7 days should lead to referral to a more experienced colleague.
## SLOUGHY WOUNDS

**Characterised by:**
- Slough - soft necrotic tissue / dead phagocytes. Yellow colouration
- Wound will not heal until slough is removed

**Aim of treatment:**
- To lift slough from wound
- To manage exudate

The dressings listed below are the preferred dressings for each of their respective type. This is not to say that choice is restricted to these only, however they should be considered and discounted before an alternative is used.

<table>
<thead>
<tr>
<th>SHALLOW</th>
<th>CAVITY</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Debridement</strong></td>
<td>Primary dressing&lt;br&gt;Alginate¹:&lt;br&gt; Aquacel&lt;br&gt; Durafiber&lt;br&gt; Hydrocolloid:&lt;br&gt; Comfeel&lt;br&gt; Granuflex</td>
<td>Primary dressing&lt;br&gt;Alginate:&lt;br&gt; Aquacel&lt;br&gt; Durafiber</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exudate Management</th>
<th>Primary dressing&lt;br&gt;As above</th>
<th>Primary dressing&lt;br&gt;As above</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Secondary dressing</strong></td>
<td>Foam :&lt;br&gt; Allevyn Life&lt;br&gt; Versiva XC</td>
<td>Foam :&lt;br&gt; Allevyn Life</td>
</tr>
</tbody>
</table>

| Colonisation / infection | See page 10 |

- Mixed wounds should be treated as per predominant wound type.
- Failure of the wound to respond to treatment within 7 days should lead to referral to a more experienced colleague.
# GRANULATING WOUNDS

**Characterised by:**
- Shiny granulation tissue
- Connective tissue and capillary loops
- Bright red colouration

**Aim of treatment:**
- Promote granulation (distinguishing between healthy and uncontrolled granulation)
- Manage exudate

---

The dressings listed below are the preferred dressings for each of their respective type. This is not to say that choice is restricted to these only, however they should be considered and discounted before an alternative is used.

<table>
<thead>
<tr>
<th>SHALLOW</th>
<th>CAVITY</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Debridement</strong></td>
<td><strong>Primary dressing</strong></td>
<td><strong>Primary dressing</strong></td>
</tr>
<tr>
<td></td>
<td>Alginate¹:</td>
<td>Alginate ribbon/rope:</td>
</tr>
<tr>
<td></td>
<td>Aquacel</td>
<td>Aquacel</td>
</tr>
<tr>
<td></td>
<td>Durafiber</td>
<td>Durafiber</td>
</tr>
<tr>
<td></td>
<td>Hydrocolloid:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comfeel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Granuflex</td>
<td></td>
</tr>
</tbody>
</table>

**Exudate Management**
- **Primary dressing**
  - As above
- **Secondary dressing**
  - Foam: Allevyn Life
  - Versiva XC

**Primary dressing**
- As above
**Secondary dressing**
- Foam: Allevyn Life

**Colonisation / infection**
- See page 10

- Mixed wounds should be treated as per predominant wound type.
- Failure of the wound to respond to treatment within 7 days should lead to referral to a more experienced colleague.

---

¹ Alginate ribbon/rope: this should be pleated and folded in the cavity. DO NOT PACK

Foam dressings: for easy removal of sticking dressings from surrounding skin – use water between skin and dressing.

Logical Combinations:
- Light exudate:
  - Alginate and film
- Moderate exudate:
  - Alginate and hydrocolloid
- Heavier exudate:
  - Alginate and foam
EPITHELIALISING WOUNDS

Characterised by:
- Epithelial cells migrating from wound edge to fill deficit, plus islands of epithelial cells in the wound bed originating from hair follicle and sweat glands
- Lilac-pink colouration
- Shallow with low exudate

Aim of treatment:
- Protect wound

The dressings listed below are the preferred dressings for each of their respective type. This is not to say that choice is restricted to these only, however they should be considered and discounted before an alternative is used

<table>
<thead>
<tr>
<th>Debridement</th>
<th>SHALLOW</th>
<th>CAVITY</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT APPLICABLE</td>
<td></td>
<td></td>
<td>Dressing selection is based entirely on the degree of exudate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exudate Management</th>
<th>SHALLOW</th>
<th>CAVITY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary dressing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thin hydrocolloid:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DuoDERM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocolloid:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfeel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foam:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allevyn Life</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary dressing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thin hydrocolloid:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DuoDERM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocolloid:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfeel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foam:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allevyn Life</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Colonisation / infection</th>
<th>SHALLOW</th>
<th>CAVITY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT APPLICABLE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Mixed wounds should be treated as per predominant wound type.
- Failure of the wound to respond to treatment within 7 days should lead to referral to a more experienced colleague.
MALODOROUS and FUNGATING WOUNDS

Characterised by:
- Offensive smell
- Variable exudate
- Painful

Aim of treatment:
- Determine the patient’s priorities regarding treatment.
- Address analgesic needs.
- Palliative management.
- Minimise disturbance to wound

The dressings listed below are the preferred dressings for each of their respective type. This is not to say that choice is restricted to these only, however they should be considered and discounted before an alternative is used.

<table>
<thead>
<tr>
<th>SHALLOW</th>
<th>CAVITY</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debridement</td>
<td>GENERALLY TO BE UNDERTAKEN BY A WOUND SPECIALIST ONLY</td>
<td>Sifflex: Used as primary to minimise disturbance - may be left in place for up to 14 days</td>
</tr>
<tr>
<td>Exudate Management</td>
<td>Primary Dressing Sifflex</td>
<td>Carboflex: Will treat colonising organism which might be causing odour, exudate and pain</td>
</tr>
<tr>
<td></td>
<td>Secondary Dressing Carboflex</td>
<td>KerraMax Care: Useful when heavy exudate - additionally can be shaped for comfort and ease of application.</td>
</tr>
<tr>
<td></td>
<td>Tertiary Dressing KerraMax Care</td>
<td></td>
</tr>
<tr>
<td>Colonisation / infection</td>
<td>NOT APPLICABLE</td>
<td></td>
</tr>
</tbody>
</table>

- Mixed wounds should be treated as per predominant wound type.
- Failure of the wound to respond to treatment within 7 days should lead to referral to a more experienced colleague.
## OTHER WOUND CARE PRODUCTS

<table>
<thead>
<tr>
<th>PRESENTATION</th>
<th>PACK SIZE</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BANDAGES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easifix K</td>
<td>singles</td>
<td>Retention</td>
</tr>
<tr>
<td>Clinilite</td>
<td>singles</td>
<td>Support Bandage</td>
</tr>
<tr>
<td><strong>COMPRESSION SYSTEMS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1: Sofast / Velband</td>
<td>singles</td>
<td>Ankle circumference: less than 18cm; 18 - 25cm; 25 - 30cm; greater than 30cm</td>
</tr>
<tr>
<td>L2: K-lite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L3: K-plus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L4: Cofast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tensopress</td>
<td>Multilayer Compression</td>
<td>Available as a kit or singles. For legs &gt;28cm</td>
</tr>
<tr>
<td>Actico</td>
<td>singles</td>
<td>Short stretch - Use only if suitably trained</td>
</tr>
<tr>
<td><strong>TUBULAR BANDAGES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinifast</td>
<td>1m singles</td>
<td>retention</td>
</tr>
<tr>
<td><strong>TAPES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinipore</td>
<td>5m x 2.5cm singles</td>
<td></td>
</tr>
<tr>
<td><strong>DRESSING PACKS [PRESCRIBE BY BRAND]</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DRESSIT</td>
<td>singles</td>
<td>DBHFT and Community</td>
</tr>
<tr>
<td>Soft Drape</td>
<td>singles</td>
<td>Tickhill Road Hospital</td>
</tr>
</tbody>
</table>

Practitioners should refer to The Wound Care Handbook for specific product characteristics [www.woundcarehandbook.com/](http://www.woundcarehandbook.com/)
NON-FORMULARY WOUND DRESSINGS PROFORMA

RDash wound formulary should be adhered to at all times, unless there is a clear clinical rationale. Patients discharged from secondary care should be transferred over to the equivalent wound product on RDash formulary – if advice is required contact the TVAL Service

**ACTION**

**Urgent request** – via non medical prescriber and complete this form.

**Non urgent** - complete this form

<table>
<thead>
<tr>
<th>Patient Name:</th>
<th>NHS Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOB:</td>
<td>Tel No:</td>
</tr>
<tr>
<td>Address:</td>
<td>Post Code:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GP &amp; Practice:</th>
<th>Tel No:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Practitioner Name:</th>
<th>Role:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tel No:</td>
<td>Fax:</td>
</tr>
</tbody>
</table>

**Formulary product tried** (include size, amount and frequency of use)

**Reason formulary product not suitable**

<table>
<thead>
<tr>
<th>Team:</th>
<th>Date Completed:</th>
</tr>
</thead>
</table>

**Non-formulary product required / prescribed**

**Dressing Required**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Size</th>
</tr>
</thead>
</table>

**How many weeks supply do you require?**

**Provide rationale for non formulary wound product choice:**

<table>
<thead>
<tr>
<th>Skin reaction/allergy to formulary product</th>
<th>On TVAL recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Different size required</td>
<td>No alternative on formulary</td>
</tr>
<tr>
<td>Formulary alternative ineffective*</td>
<td>Other*</td>
</tr>
</tbody>
</table>

*Rationale*

I would like this product to be considered for the next formulary review (please tick)

| Yes ☐ | No ☐ | Undecided ☐ |

OFF FORMULARY REQUESTS MUST BE AUTHORISED BY DISTRICT NURSING SISTER/CHARGE NURSE OR EQUIVALENT:

Name………………………………………… Signature………………………… Designation…………………………

INCOMPLETE / ILLEGIBLE FORMS WILL BE RETURNED TO SENDER – COMPLETE ALL SECTIONS

IF SUPPORT IS REQUIRED WITH WOUND DRESSING SELECTION REFER TO SKIN SERVICE

Outcome

APPROVED……………………………………..DECLINED……………………………………..
### Wound Management Guideline with TIME

This guideline supersedes Wound Management Guideline. These criteria are to be used in conjunction with the Trust’s Wound Management Policy.

#### Treatment Aims

- **Limb necrosis:** It may not be appropriate to use debridement dressings to hydrate necrotic tissue when the blood supply is compromised.
- **Debride eschar:**
  - **Remove eschar:**
  - **Provide clean base for granulation:**
  - **Promote granulation:**
  - **Provide healthy base for epithelialisation:**
  - **Promote epithelialisation and wound maturation:**
  - **Manage infection:**
  - **Manage complex wound:**
    - e.g. bleeding, exudate, malodour, sinuses

#### Treatment Choice

<table>
<thead>
<tr>
<th>Tissue Type</th>
<th>Primary Dressing</th>
<th>Secondary Dressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Necrotic</td>
<td>Instrastide</td>
<td>Film</td>
</tr>
<tr>
<td>Sloughy</td>
<td>Intrastide</td>
<td>Film</td>
</tr>
<tr>
<td>Granulating</td>
<td>Intrastide</td>
<td>Film</td>
</tr>
<tr>
<td>Epithelialising</td>
<td>Intrastide</td>
<td>Film</td>
</tr>
<tr>
<td>Infected</td>
<td>Intrastide</td>
<td>Film</td>
</tr>
<tr>
<td>Fungating, Malodorous</td>
<td>Intrastide</td>
<td>Film</td>
</tr>
</tbody>
</table>

**WITH A CAVITY**

- **Low exudate**
  - Instrastide
  - Film

- **Medium exudate**
  - Intrastide
  - Allevyn
  - Sorbsan
  - Sorbsan ribbon

- **High exudate**
  - Sorbsan
  - Sorbsan Plus
  - Sorbsan packing
  - Sorbsan packing

**WITHOUT A CAVITY**

- **Low exudate**
  - Instrastide or Comfeel
  - Film

- **Medium exudate**
  - Instrastide or Comfeel
  - Allevyn
  - Sorbsan
  - Sorbsan Plus

- **High exudate**
  - Sorbsan
  - Allevyn

**MOISTURE**

- **AIM**
  - **To reduce wound size:** Wound evaluations should be carried out at each dressing change and documented accordingly. This evaluation should include wound measurements e.g. length, width, and depth. If wounds still static after 4 weeks reassess intervention and consider referral to a more experienced colleague/Tissue Viability Outreach Service.

**EDGE**

- **AIM**
  - Mixed wounds should be treated as per predominant wound type.

---

Formulated by Dawn Squires - Clinical Nurse Specialist Tissue Viability, Rotherham Doncaster and South Humber NHS Foundation Trust; Tracy Vernon - Lead Nurse Tissue Viability, Sue Johnson - Clinical Nurse Specialist, Wound Care and Kathy Leak - Sister, Wound Care, Doncaster and Bassetlaw Hospitals NHS Foundation Trust.

---

*Appendix 3*
TIME IS MONEY

DESCRIBE AND DOCUMENT WHAT YOU SEE

TISSUE
Is the appearance of the wound bed black or yellow with necrotic or sloughy tissue, red or pink with granulating tissue, healthy in appearance?

INFLAMMATION AND INFECTION
Look for redness, exudate, odour, pain and heat!

MOISTURE
Is the wound bed too dry?
Risk of desiccation. Is there a heavy exudates?
Risk of maceration!

EDGES
Non advancing edges?
Is the surrounding skin healthy?
Are wound edges rolled or flat?

CONTACT THE TISSUE VIABILITY TEAM ON 01302 798080 OR EMAIL: dawne.squires@doncasterpct.nhs.uk
BioBag® Size Guide

- **BB400**: 10 x 10 cm
- **BB50**: 2.5 x 4 cm
- **BB100**: 5 x 4 cm
- **BB200**: 5 x 6 cm
- **BB300**: 6 x 12 cm

Loose Larvae Calculator

1. Measure the dimensions of the wound in centimetres
2. Pick the nearest size from the measurements on the left of the chart
3. Move sideways to the appropriate percentage of wound coverage
4. The recommended number of larvae required is indicated.

<table>
<thead>
<tr>
<th>Maximum wound size (cm)</th>
<th>Percentage of wound covered with slough/necrotic tissue</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 2 x 2</td>
<td>100 100 100 100 100 100 100 100 100 100 100 100 100 100 100</td>
</tr>
<tr>
<td>5 x 5</td>
<td>100 100 100 100 100 100 100 100 100 100 100 100 100 100 100</td>
</tr>
<tr>
<td>5 x 10</td>
<td>100 100 100 100 100 100 100 100 100 100 100 100 100 100 100</td>
</tr>
<tr>
<td>10 x 10</td>
<td>100 200 300 400 500 600 800 1200 1500 2000 3000 4000 5000 6000 8000</td>
</tr>
<tr>
<td>10 x 15</td>
<td>200 300 400 500 600 700 800 1200 1500 2000 3000 4000 5000 6000 8000</td>
</tr>
<tr>
<td>15 x 15</td>
<td>300 500 700 900 1200 1500 2000 3000 4000 5000 6000 8000 12000 15000 20000</td>
</tr>
<tr>
<td>15 x 20</td>
<td>300 600 900 1200 1500 2000 3000 4000 5000 6000 8000 12000 15000 20000</td>
</tr>
<tr>
<td>20 x 20</td>
<td>400 800 1200 1600 2000 3000 4000 5000 6000 8000 12000 15000 20000</td>
</tr>
</tbody>
</table>

**Key**
- 1 x Larvae100®
- 1 x Larvae200®
- 1 x Larvae100® + 1 x Larvae200®
- 2 x Larvae200®
- Use combination of Larvae100® + Larvae200® as required

Note that the calculator only measures the surface of the wound. If the wound has significant depth, more larvae may be required.
BioBag and loose larvae sizes and codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB50</td>
<td>BioBag 2.5x4cm</td>
</tr>
<tr>
<td>BB100</td>
<td>BioBag 4x5cm</td>
</tr>
<tr>
<td>BB200</td>
<td>BioBag 5x6cm</td>
</tr>
<tr>
<td>BB300</td>
<td>BioBag 6x12cm</td>
</tr>
<tr>
<td>BB400</td>
<td>BioBag 10x10cm</td>
</tr>
<tr>
<td>STKIT100</td>
<td>Larvae100 &amp; 30x30cm net kit pack</td>
</tr>
<tr>
<td>STKIT200</td>
<td>Larvae200 &amp; 30x30cm net kit pack</td>
</tr>
<tr>
<td>BTKIT100</td>
<td>Larvae100 &amp; Boot net kit pack</td>
</tr>
<tr>
<td>BTKIT200</td>
<td>Larvae200 &amp; Boot net kit pack</td>
</tr>
<tr>
<td>LV100</td>
<td>Additional Larvae100</td>
</tr>
<tr>
<td>LV200</td>
<td>Additional Larvae200</td>
</tr>
</tbody>
</table>

How to order

Using the BioBag Size Guide, select the appropriate sized dressing or combination of dressings to cover the entire treatment area including margins.

The Larvae Calculator can be used to provide guidance on the number of larvae that should be applied in each application. The calculator is freely available either as a hard copy from BioMonde or by downloading it from our website.

A retention net is required to apply free range Larvae to a wound. These nets are also available from us. Remember that the net dressing must always overlap the wound and in the case of circumferential wounds, the net sleeves must extend beyond the length of the wound.

Ordering information – Hospital
- Size and quantity of BioBag Dressings / number of pots and retention nets required
- Official order number
- Intended delivery date required
- Full delivery address (please note that all deliveries must be signed for)
- Invoice address required.

Orders will be accepted up to 2pm the day before the intended application date. To cancel an order, please contact BioMonde before 2pm on the day before delivery, all cancellations received after this time must be paid for in full as the order will have been despatched for delivery.

Ordering information – Community
- Community orders will need to be raised on an FP10 prescription by a doctor or registered prescriber
- Intended delivery date required
- Community pack size required
- Full delivery address (please note that all deliveries must be signed for)
- Invoice address required.

Telephone:
0845 230 1810
E-mail: orders@biomonde.com
Fax: 01656 668 047

Office Hours
Monday to Friday 8:30am – 5:00pm
For assistance outside working hours please call our Clinical Helpline: 0845 230 6806.

www.bimonde.com
Larval Debridement Therapy

Application guide and daily care plan

BioBag

Daily care

- Daily change of the secondary dressings, where possible, is recommended, and when breakthrough is present.
- Avoid sustained direct pressure as this may occlude the larval. Short periods for the purposes of mobilisation are permissible.
- Keep larva free at secondary dressing changes - movement of larva and presence of dark red exudate indicate the larva are alive.
- Reapply barrier where necessary to the peri-wound area.
- Ensure damp gauze is placed on top of the BioBag at each secondary dressing change.
- Ensure that all outer/secondary dressings are not occlusive and are permeable to the air.
- After 72 hours, reassess wound to decide on further treatment. If a further NEW larval treatment is required, schedule a new order.

- If debridement is near completion and no further NEW larval treatment is required, plan follow-on dressing treatment to be completed at end of day 4.
- On removal, double bag and treat as clinical waste in line with your local Grade A Clinical Waste Disposal Protocol.
- Do not immerse in water. Do not occlude.

Larvae (BioBag)

4 Day Treatment Cycle

1. Materials required

- BioBag or combination of BioBag sizes, suitable for the wound size.
- A wound dressing pack.
- Barrier cream or Zinc paste to protect intact peri-wound skin (Sudocreme or similar suitable).
- An absorbent (non-occlusive) dressing pad and a lightweight retention bandage.
- Sterile saline for irrigation of wound or dressing residues & moisturising the primary wound.

2. Preparation

1. Prepare the peri-wound area and wound bed, irrigate to remove residue and loosen material.
2. Protect intact skin around the margin of the wound by applying a thin layer of the barrier cream/bandage. (Fig. 1)

3. Applying larvae to the wound

1. Remove the BioBag from the transport vial.
2. Place onto wound so that where possible the wound margin is covered. Fold/pleat back excess of the bag away from peri-wound skin (Fig. 2).
3. Place a saline moistened gauze swab over the BioBag dressing (especially if it is a very dry wound) (Fig. 3).
4. Secure well with a secondary dressing to avoid slippage and to ensure surface contact of BioBag is maintained (Fig. 4).

- Ancillary dressings should be selected in order to manage exudates.
- All outer dressings MUST be non-occlusive as the larva need oxygen to survive.
- Very wet outer dressings may ooze and suffocate the larva.

See overleaf for sizing guide and ordering information.
Looking after your Larval Therapy

BioBag daily care

- Do not immerse in water. Do not occlude.
- Avoid sustained, direct pressure as this may occlude the larve. Short periods for the purposes of mobilization are permissible.
- Daily change of the secondary dressings is recommended and when strike-through is present.
- Re-apply barrier where necessary to the peri-wound area (fig.1).

- Check larvae are viable at secondary dressing changes - movement of larvae and presence of dark red exudate indicate the larvae are alive (fig.2).
- Ensure damp gauze and an absorbent pad are replaced on top of the BioBag at each secondary dressing change (fig.3).
- Ensure that all outer dressings are not occlusive and are permeable to the air (fig.4).
- After 72 hours, reassess wound to decide on further treatment. If a further NEW larval treatment is required, schedule a new order.
- If debridement is near completion and no further NEW larval treatment is required, plan follow on care/dressings as per specialist instructions or local formulary.
- On removal, double bag and treat as clinical waste in line with your local Grade A Clinical Waste Disposal Protocol.

4 Day Treatment Cycle

<table>
<thead>
<tr>
<th>Days</th>
<th>Application of larve</th>
<th>24hrs</th>
<th>48hrs</th>
<th>72hrs</th>
<th>96hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Care</td>
<td>Daily Care</td>
<td>Daily Care</td>
<td>Daily Care</td>
<td>Daily Care</td>
<td></td>
</tr>
</tbody>
</table>

Repeat as required

How to store and order

BioBag sizes and codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB50</td>
<td>2.5x5cm</td>
</tr>
<tr>
<td>BB100</td>
<td>5x5cm</td>
</tr>
<tr>
<td>BB200</td>
<td>5x10cm</td>
</tr>
<tr>
<td>BB300</td>
<td>12x10cm</td>
</tr>
<tr>
<td>BB400</td>
<td>10x10cm</td>
</tr>
</tbody>
</table>

Ordering Larvae

Orders received by us before 2pm will qualify for inclusive next day delivery, or a future planned date of your choosing.

Please allow time for your own internal procurement/pharmacy to process the order.

E-mail: orders@biomonde.com
Fax: 01656 688 047
Office Hours
Monday to Friday 8:30am – 5:00pm
For assistance outside working hours please call our Clinical Helpline: 0845 230 6806

Storage

- Keep in transit containers
- Store at a temperature of 6°C to 25°C.
  (products do not need to be refrigerated)
- Must be applied by expiry date; usually the day after delivery. For optimal results apply on day of delivery.

www.biomonde.com

Making healing possible
Making healing possible

Patients’ & Carers’ Guide
Answers to your common questions

BioMonde®

Appendix 8
If you are reading this, it is likely that you are considering larval therapy as part of a course of wound treatment. This booklet is intended to provide you with information on the technique and give answers to some of the questions you might have about the therapy.

What is larval therapy?

Larval Therapy, also known as ‘Maggot Therapy’ or ‘Biosurgery’ involves the use of larvae of the greenbottle fly, which are introduced into a wound to remove necrotic, sloughy and/or infected tissue. Larvae can also be used to maintain a clean wound after debridement if a particular wound is considered prone to resloughing.

The technique, which has been used for centuries, has been reintroduced into modern medicine by doctors and wound care specialists who have found that larvae are able to cleanse wounds much more rapidly than conventional dressings.

Whilst larvae should not be regarded as a cure for all types of wounds, by removing dead tissue and any associated bacteria, in most instances they will improve the condition of a wound and allow the process of healing to begin.

How does larval therapy work?

The processes by which larvae clean wounds are very complex, but in simple terms they physically feed on dead tissue and release special chemicals into the wound that
breakdown dead tissue into a liquid form that the larvae can easily remove and digest. During this process the actively feeding larvae also take up bacteria, which are then destroyed within their gut.

This process is so effective that larvae can often clean a wound within a few days.

**How big are the larvae?**

The larvae that are applied to your wound are very small, only a few millimetres in length, smaller than a grain of rice. During the treatment time they will increase in size as they clean the wound, to a maximum of 12mm.

**How are the larvae applied?**

There are two methods of application:

1) **BioBag Dressing**
   The larvae are sealed within a dressing which is a finely woven net pouch containing a small piece, or pieces of foam, which aid the growth of the larvae and manage exudate. The BioBag Dressings come in varying sizes and are applied according to the nature and size of the wound being treated. The larvae remain sealed within the dressing throughout the treatment.

2) **Free Range Larvae**
   The larvae are applied directly onto the wound and retained within a special dressing system. The exact nature of this is determined by the size and location of the area to be treated.
How long does the treatment last?

This can vary with each treatment of larvae and the method of application being used. BioBag Dressings can be left in place for up to four days; it is possible for the dressing to be removed on a daily basis to allow inspection of the wound site.

‘Free Range’ larvae are generally left in place for up to three days before being removed from the wound site.

With both application methods, it is impossible to predict how long a course of treatment will take. Sometimes a wound is completely cleansed by a single application of larvae but other wounds may require two or more treatments to achieve the desired effect.

Will I notice anything different during larval therapy?

During larval therapy you may notice some changes in the wound:

- The wound may become a little wetter than usual or show the presence of a dark red or pink discharge. This is due to the action of the larvae breaking down the dead tissue.
- Sometimes a wound that contains a lot of dead tissue will develop a characteristic smell during treatment. This is nothing to worry about, it is just due to the activity of the larvae and should disappear when the dressing is changed.
- Most people are unaware of the larvae’s presence, although a small number of patients claim that they can feel the larvae moving but only describe this as a tickling sensation.
- Some patients, particularly those with poor circulation report that their wounds become more painful during larval therapy but this can generally be controlled with medication.
- Some patients have found that the pain associated with infected wounds is reduced following larval therapy.
Will larvae burrow into healthy tissue?

The larvae used in wound management will not attack or burrow into healthy tissue, they only remove dead tissue.

Will the larvae multiply in my wound?

Only adult flies can lay eggs, so the larvae cannot reproduce or multiply within the wound.

Where do the larvae come from?

Larvae are produced in a special unit by highly trained staff at Biomonde, a company with many years experience in wound management.

Are there any activities that should be avoided during treatment?

Although it is possible for the patient to carry out most normal activities whilst undergoing larval therapy, they should ideally not bathe or immerse the wound in water.

It is also not a good idea to sit with the wound too close to a source of heat e.g. fire or radiator, as the larvae may dry out. Similarly, sitting or walking on a wound treated with larvae should also be avoided as much as possible.
Why use larval therapy instead of a conventional dressing?

Clinical experience with larvae has shown that they can clean wounds in a fraction of the time taken by more conventional dressings, which could potentially speed up healing times. They are also useful in the management of infected wounds containing bacteria that are difficult to kill with more conventional treatments. Larvae have also been shown to be successful at eliminating MRSA from wounds.

What is the ethical position relating to the use of larvae?

The use of larvae in wound management has a sound basis in literature. It appears to be free of any serious or significant side effects and can have major advantages over conventional treatments for certain types of wounds. Provided that a specific patient has no objection to the use of larvae there appear to be no ethical barriers to their use.

For more information,
Healthcare Professionals: 0845 230 1810
Patients: Please contact your Healthcare Professional
### Referral Form

**Tissue Viability and Lymphoedema Service**

This form must be fully completed for the referral to be processed and prioritised.

<table>
<thead>
<tr>
<th>Office Use only:</th>
<th></th>
<th>Urgent</th>
<th>Non-urgent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Referral Received:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Triage:**

<table>
<thead>
<tr>
<th>Patient Name:</th>
<th></th>
<th>Referrer’s Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td></td>
<td>Referrer’s Contact No:</td>
</tr>
<tr>
<td>Post Code:</td>
<td></td>
<td>Referrer’s Address:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date of Birth:</th>
<th></th>
<th>Referrer’s Title / Specialty:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS No:</td>
<td></td>
<td>GP:</td>
</tr>
<tr>
<td>Tel No:</td>
<td></td>
<td>Contact No:</td>
</tr>
<tr>
<td>Mobile:</td>
<td></td>
<td>GP Practice:</td>
</tr>
<tr>
<td>Next of Kin:</td>
<td></td>
<td>Hospital Consultant(s):</td>
</tr>
<tr>
<td>Contact No:</td>
<td></td>
<td>Contact No(s):</td>
</tr>
</tbody>
</table>

**Language:**

<table>
<thead>
<tr>
<th>Interpreter Needed?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Ethnicity:</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Religion:</th>
<th></th>
</tr>
</thead>
</table>

**Reason for referral:**

**Is the patient aware of the referral?**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>
Brief outline of current problem, including any relevant medical history and current medications:

Any other relevant information e.g. Known to Specialist Services or Consultant

For Lymphoedema only: Has this patient received a diagnosis or had any treatment related to cancer? If yes, please give brief details.

For Tissue Viability Service only

Pressure ulcer grade:

Will patient be able to attend clinic for assessment?  

Yes  

No

Referred by signature: ...........................................  Print Name: .................................................................

Date: .................................................................

All referrals must be faxed to 01302 798080 or sent by post to the
Tissue Viability and Lymphoedema Service, St Johns Information & Support Centre
WestonRoad, Balby, Doncaster, DN48JS
Pressure ulcer or foot ulcer?

Is it a pressure ulcer?

- Category 1 pressure ulcer
- Category 2 pressure ulcer

Is it a foot ulcer?

- Fiction from footwear
- Trauma from footwear

Are you unsure?

- Ischaemia and pressure
- Ischaemia

- Plantar neuropathic ulceration
- Fissure

Deep tissue damage

- Deep tissue damage

All pressure ulcers category 2, 3 and 4 must be entered onto the electronic IR1 system. All Trust acquired category 3 and 4 pressure ulcers must be raised as STES and RCA process commenced.

Typical causes for pressure ulcer:

- Chronic prolonged pressure from sitting or lying in one position
- Always ask yourself - Where has the pressure come from?

Refer all category 3, 4 and deteriorating category 2 pressure ulcers to the Tissue Viability and Lymphoedema Services for advice and clinical support.

Typical causes for foot ulcer:

- Friction from poorly fitting footwear
- Trauma, burns, puncture wound
- Untreated callosity
- Bony deformity

Refer to Podiatry Service.

Typical cause: prolonged pressure causing deep tissue damage, skin intact or poor circulation causing ischaemia tissues where minimal pressure caused damage.

Refer all sets to Tissue Viability and Lymphoedema Services all other areas on the foot to Podiatry Services for advice/call clinical support.