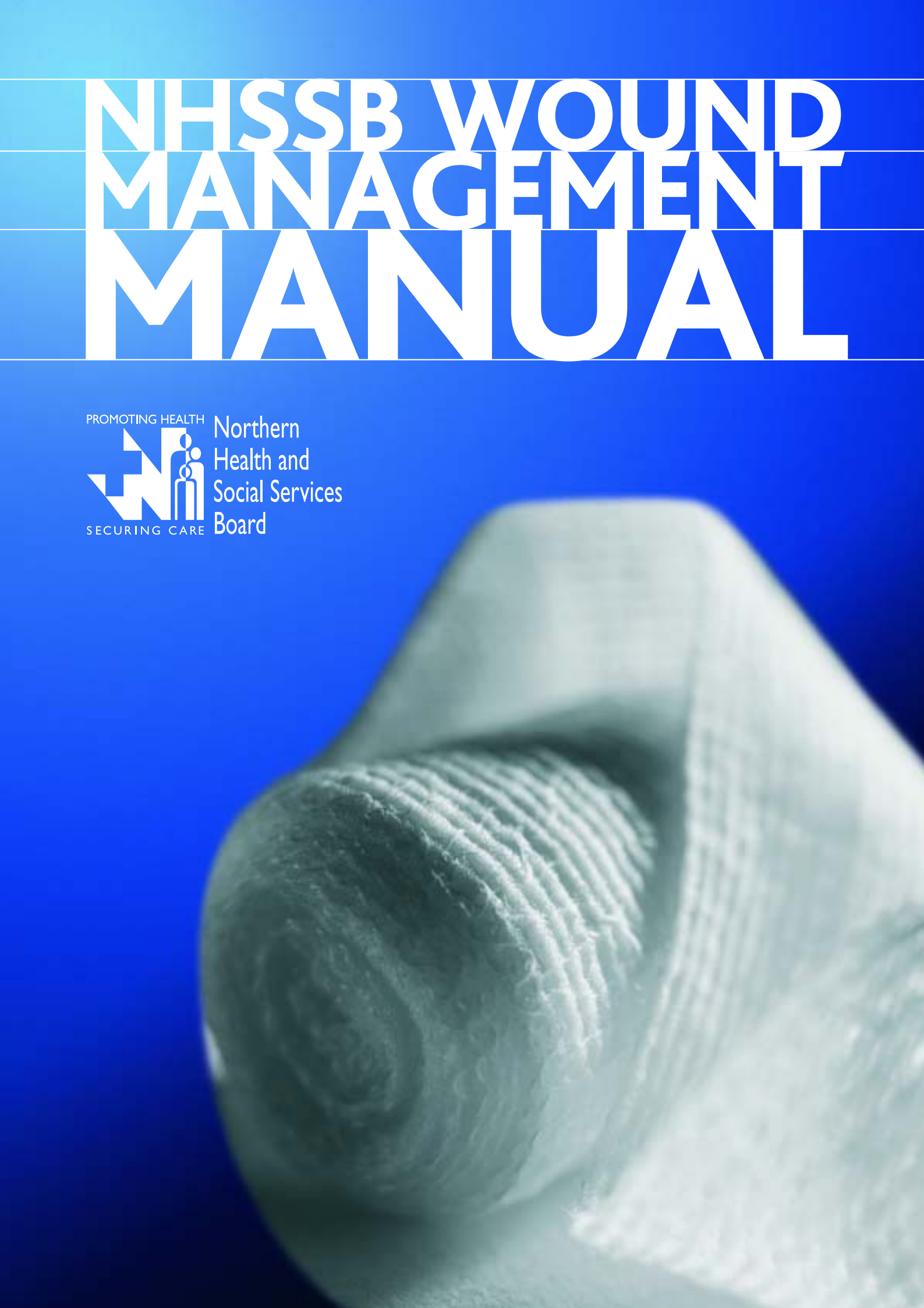
NHSSB WOUND MANAGEMENT MANUAL

PROMOTING HEALTH
SECURING CARE
Northern Health and Social Services Board



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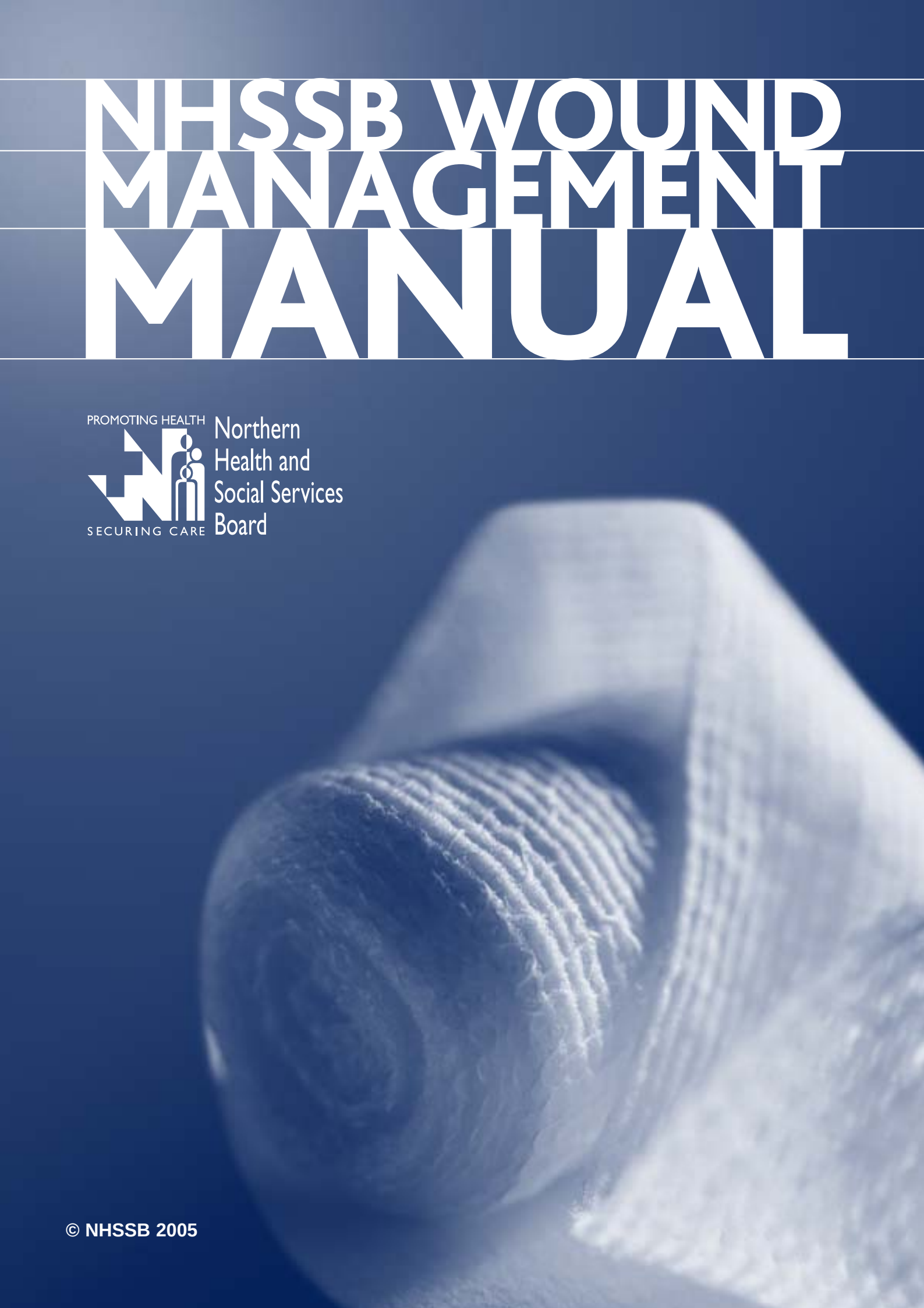

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Foreword

We would like to thank the Department of Nursing and Consumer Services, NHSSB for funding the publication of this manual and trust that you will find it to be a useful resource.

The first Northern Health and Social Services (NHSSB) Wound Dressings Manual was produced in 1997. It was widely welcomed as a reference making sense of the vast myriad of wound management products then available. The CREST Guidelines for Wound Management in Northern Ireland were launched around the same time and together these were invaluable tools in improving wound management within the NHSSB area.

Many more products have since become available. The manual has been updated by a sub-group of the NHSSB Wound Management Group. It has been renamed the **NHSSB Wound Management Manual** to reflect inclusion of guidance on newer procedures such as larvae, vacuum assisted closure and other general information, including wound assessment. The manual also contains the **NHSSB Guidance for Management of Black Heels.**

The NHSSB Wound Management Manual is being distributed to members of the primary care team, podiatry, private nursing homes, community pharmacies and all hospitals within the NHSSB area. It is complementary to the NHSSB Wound Care Formulary which gives guidance on specific products recommended for use within each dressing type. The formulary can be viewed on www.nhssb.n-i.nhs.uk

Feedback on the Wound Management Manual

We would welcome your feedback and any comments you may have. If there is information you feel should be considered for inclusion when the manual is next reviewed, please send it at any time, along with any associated evidence-based literature to:

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Further Copies

To obtain further copies of Wound Care Formulary or Wound Management Manual contact the NHSSB Prescribing Support Team (028) 9448 1256 or email Fiona.McConnell@nhssb.n-i.nhs.uk

Acknowledgements
Sincere thanks to the following individuals who have contributed to the manual:

Mrs Sandra Bellingham, Tissue Viability Nurse Specialist, Causeway Health and Social Services Trust
Mrs Mary-Ann Conlon, Macmillan Specialist Palliative Care Nurse, Causeway Health and Social Services Trust
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Dr Paddy Kearney, Consultant Microbiologist, United Hospitals Trust
Mrs Sharon King, Community Dietitian (Physical and Sensory Disability), United Hospitals Trust
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Mrs Fiona McConnell*, Prescribing Adviser, NHSSB
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Mrs Stephanie Tohill*, Senior Pharmacist, Causeway Health and Social Services Trust
Mrs Elaine Witherhead*, Tissue Viability Nurse Specialist, Homefirst Community Trust

* *Members of the sub-group who led the work on both the Wound Management Manual and Wound Care Formulary*

External Reviewers
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Mrs Caroline Graham, Tissue Viability Nurse Specialist, South and East Belfast Trust
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Disclaimer
The information contained within is intended for use by healthcare professionals within the Northern Health and Social Services Board area. We have made every effort to check that the information is accurate at the time of publication. The Northern Health and Social Services Board does not accept any responsibility for loss or damage caused by reliance on this information.

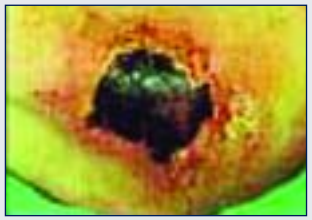
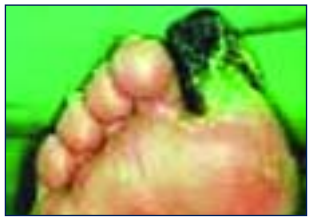
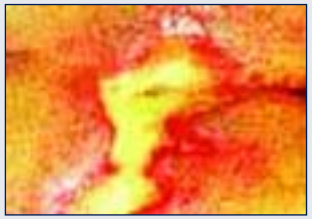
Characteristics of the ideal wound dressing

The ideal wound dressing should provide the optimum environment to meet the treatment objective and protection from further injury

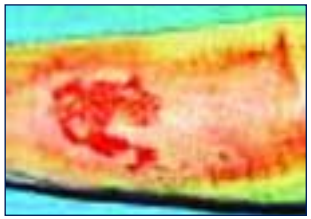
CHARACTERISTIC	RATIONALE
Promotes moist wound healing*	Dry wound bed inhibits wound healing
Manages excess exudate	Prevent maceration and further wound breakdown
Provides thermal insulation	Reducing temperature at wound bed reduces fibroblast activity
Impermeable to micro-organisms	Prevent exit and entry of organisms
Causes minimal trauma on removal	Prevents damage and reduces pain
Cost effective	Makes best use of available resources
Available in hospital and community	Accessible to all carers

*NOTE: In certain circumstances moist wound healing may not be the treatment objective eg. black heels

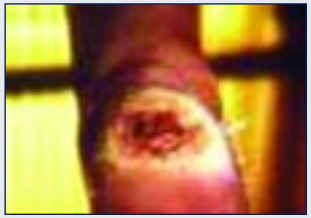
Guide to Wound Management

A GUIDE TO WOUND MANAGEMENT [1]				
PHOTOGRAPH	DESCRIPTION OF WOUND	TREATMENT OBJECTIVES	EXUDATE LEVEL None - Low	EXUDATE LEVEL Moderate to High
	**Necrotic (Dead tissue)**	Debridement and management of exudate *Be aware of vascular status before any form of debridement is considered on lower limb*	Hydrogel and Semi-Permeable Film OR Low/Non Adherent Dressing OR Hydrocolloid Sharp debridement if appropriate	Alginate OR Hydrofibre with secondary absorbent dressing Treat underlying cause of exudate Sharp debridement
	**Necrotic Digit**	To prevent infection To aid auto-amputation of digit	Leave exposed or cover with Low/Non Adherent Dressing or Povidone-iodine dressing. Seek podiatry/ surgical opinion	Alginate with secondary absorbent dressing Treat underlying cause of exudate Seek podiatry/surgical opinion
	**Sloughy (dead tissue)** N.B. yellow tissue may be tendon or bone	Debridement and management of exudate	Hydrogel and Semi-Permeable Film/Low/Non Adherent Dressing OR Hydrocolloid AND/OR Sharp debridement	Alginate OR Hydrofibre with secondary absorbent dressing Treat underlying cause of exudate

(1) Adapted from CREST Wound Management Guidelines, 1998

A GUIDE TO WOUND MANAGEMENT [1]				
PHOTOGRAPH	DESCRIPTION OF WOUND	TREATMENT OBJECTIVES	EXUDATE LEVEL None - Low	EXUDATE LEVEL Moderate to High
	**Granulating** (process by which the wound is filled with highly vascular fragile connective tissue)	Keep warm and moist Manage exudate Protect	Low/Non Adherent Dressing OR Hydrocolloid	Alginate OR Hydrofibre with secondary absorbent dressing eg. Foam OR Absorbent Dressing Pad OR Low/Non Adherent Dressing Treat underlying cause of exudate
	**Epithelialising** (process by which the wound is covered with new skin cells)	Keep warm and moist Manage exudate Protect	Low/Non Adherent Dressing OR Hydrocolloid	Alginate OR Hydrofibre with secondary absorbent dressing eg. Foam OR Absorbent Dressing Pad OR Low/Non Adherent Dressing Treat underlying cause of exudate
	**Cavity**	Allow to granulate from bottom up If sloughy debride Manage exudate	Hydrogel and semi-permeable film	Alginate OR Hydrofibre with secondary absorbent or hydrocapillary dressing Treat underlying cause of exudate

(1) Adapted from CREST Wound Management Guidelines, 1998

A GUIDE TO WOUND MANAGEMENT [1]				
PHOTOGRAPH	DESCRIPTION OF WOUND	TREATMENT OBJECTIVES	EXUDATE LEVEL None - Low	EXUDATE LEVEL Moderate to High
	**Macerated skin** (a softening or sogginess of surrounding tissue)	Check if present dressing regime is absorbing the exudate. Protect skin with a barrier ointment eg. liquid/soft white paraffin mix. Barrier film spray or applicator	Macerated skin does not tend to occur in non or low exuding wounds unless the dressing has been left in place too long!	Alginate OR Hydrofibre and secondary absorbent dressing. Treat underlying cause of exudate Consider more frequent dressing changes

For more information on the following, please refer to the information elsewhere in the manual

- Excoriated Skin
- Dry Skin
- Varicose eczema
- NHSSB wound observation chart

(1) Adapted from CREST Wound Management Guidelines, 1998

Nutrition and Wound Management

ROLE OF NUTRITION	
CHARACTERISTIC	**RATIONALE**
Ensure optimum nutrition (EPUAP Guidelines)	Aids wound healing, maintains immune function and decreases the risk of infection. Malnutrition and clinically proven deficiencies are associated with delayed wound healing and increased complications
Ensure varied and balanced nutritional intake	Provide all the essential nutrients needed for wound healing
Specific nutrients associated with wound healing include	Adequate calories; protein; vitamins: A, B, C, D, E; minerals: Iron, Zinc, Selenium

NUTRITION SCREENING	
All patients at risk of pressure ulcers or with chronic wounds should be screened	To detect those at nutritional risk
Use Validated Screening Tool	For example: • MUST (BAPEN 2003) • Locally agreed screening tool • eg. Adapted Waterlow OR Braiden score • NHSSB Nutrition Risk Scoring Tool (Nursing & Residential Homes)
Consider Intrinsic factors	Check Haemoglobin (Hb) levels, check serum Albumin, ensure good glycaemic control (patients with Diabetes). Possible referral to diabetic nurse specialist.
Consider Extrinsic factors	Assess nutritional status

NUTRITION STATUS * Consider nutritional status in ALL patients at risk of pressure ulcers or with chronic wounds	
Assess nutritional status (EPUAP) Guidelines	Check Haemoglobin (Hb) and Albumin levels Ensure adequate calorie intake Ensure adequate protein intake ie 2 portions protein foods/ day Adequate minimum fluid ie 8-10 cups/glasses/day Daily dietary Vitamin C (Ascorbic acid)
Use of vitamin and mineral supplements (Food Standards Agency: Safe upper levels for vitamins and minerals, 2003)	Avoid vitamin and mineral supplements unless serum levels checked and/or recommended by GP/Dietitian Avoid supplements in excess of 1000mg/day Vitamin C (Ascorbic acid) and 50mg/day Zinc
High risk patients	• Weight loss, Protein Energy Malnutrition (PEM), poor oral intake • Post surgery, malabsorption (IBD) • High exudate wounds • Diabetic patients, IGT, IFG • Chronic leg ulcers, prolonged healing wounds • Home enteral feeding
Screen for undiagnosed Diabetes	In all patients with: Venous and arterial leg ulcers Chronic wounds and leg ulcers slow to heal ***Ensure referral to Dietitian on diagnosis of Diabetes***
Referral to dietitian	For individual nutritional assessment refer to Dietitian via GP / Consultant

Dressing Selection

As wound management becomes more complex, an adequate knowledge of dressing function and performance is required before dressing selection.

Before applying any dressing the practitioner should ask:

- What is the action of this dressing?
- When should it be used?
- Are there any contra-indications to its use?
- Do I know the method of application and removal?
- Is a secondary dressing required? If **yes** which dressing is appropriate?

The application of an inappropriate secondary dressing may adversely affect the ability of the primary dressing to function correctly.

Combinations to avoid

COMBINATION	REASON
Hydrogel and foam Hydrogel and hydrofibre Hydrogel and alginate	Moisture from the gel will be taken up by the foam/hydrofibre/alginate

This list is not exhaustive. Various inappropriate combinations have been seen. Practitioners are reminded of the potential risks and unnecessary costs of using such combinations. Any wound care that is devoid of any evidence base will become a clinical governance issue.

Products

Alginates

For details of product choice, dressing size and prescribing information see NHSSB Wound Care Formulary

Rationale: Manage wound exudate and stop bleeding

ACTION	RATIONALE
Apply directly onto wound bed tissue	Contact with wound bed tissue provides optimum conditions for dressing effectiveness
Apply directly onto bleeding tissue	These dressings have haemostatic properties (ie. help stop bleeding)
Apply directly onto heavily exuding wounds	Retains exudate within the dressing and prevents maceration of the periwound area
Loosely pack exuding cavity with rope/ribbon form	Prevent damage to any new tissue and manage exudate, allowing free drainage
Redress daily if applied to an infected wound	Prevent harbouring of micro-organisms on the wound bed, preventing wound healing
Otherwise leave in place for a maximum of seven days. Change dressing when maximum absorbency of dressing reached or when strike-through of secondary dressing occurs.	Reduce wound disturbance and unnecessary dressing changes
Soak with warm normal saline to facilitate removal if necessary	Prevent damage/trauma to new tissue and prevent pain for the patient
Do not use on dry wound beds	Adheres to dry tissue and may cause further damage
Apply secondary dressing to hold dressing in place Choice depends on type of wound plus level of exudate, e.g. High - dressing pad (Mesorb®) Low - swab (Topper®) or Absorbent film perforated dressing e.g. Release. NB: Alginate dressings may shed fibres into the wound	To retain primary dressing and aid exudate management

Alginates

Description

Alginate dressings are produced from the calcium and sodium salts of alginic acid, a polymer obtained from seaweed that is composed of mannuronic and guluronic acid residues. In the presence of exudate the fibres absorb liquid and swell causing the dressing to take on a gel-like appearance. This overlays the wound and provides a micro-environment that is believed to facilitate wound healing.

Whilst in theory all calcium alginate products have haemostatic properties, not all companies have included this in their information. If choosing an alginate for this specific property the clinician should ensure the dressing has this licensed indication.

Indications

Primary dressing for management of heavily exuding wounds, including chronic leg ulcers, pressure ulcers, fungating carcinomas and acute wounds such as abrasions, lacerations and post surgical wounds. May be applied to infected wounds if producing exudate. Sheets may be applied directly to exuding or bleeding wounds. Rope/ribbon forms are available and are more suitable for packing cavities.

Contraindications

Known sensitivity to the alginate or one of its components.
Do not use with alkaline solutions due to incompatibility with alginate fibres.

Warnings

Do not leave on longer than 7 days.
Cavities should be packed loosely - DO NOT pack tightly.

Cadexomer Iodine

Rationale: Chronic exuding wounds such as leg ulcers, pressure ulcers & diabetic ulcers where infection or overload of bacteria is present or suspected

ACTION	RATIONALE
Iodoflex® Remove one of the carrier layers prior to application and apply directly to wound bed	Easy handling of paste dressing
Second carrier layer can now be removed or left in place	May ease removal of dressing in one piece
Apply secondary absorbent dressing	To manage exudate and retain dressing in place
Irrigate the wound with warm normal saline on removal	Reduce unnecessary pain to the patient and prevent trauma to the wound bed
Redress 2-3 times weekly	Loss of antimicrobial activity if left in position too long
Maximum single application 50g. Maximum weekly application must not exceed 150g	To decrease risk of systemic absorption
Maximum single course duration 3 months	Reduce potential risk of inducing resistant micro-organisms

Cadexomer Iodine

Description
Iodoflex® consists of individual applications of a cadexomer iodine paste consisting of a macrogol ointment base incorporating sterile, yellow-brown microspheres or beads 0.1–0.3 mm in diameter. The beads, which are formed from a three-dimensional network of cadexomer - a chemically modified starch, contain elemental iodine within their structure. The paste is presented between two layers of gauze fabric which act as carriers and facilitate application. In the presence of aqueous solutions or wound fluid, the beads in the paste take up liquid and swell, slowly releasing the iodine, which imparts antibacterial properties to the dressing.

Indications
Iodoflex® is used for the treatment of chronic exuding wounds such as leg ulcers, pressure ulcers and diabetic ulcers, particularly when infection is present or suspected.

Contra-indications
As Iodoflex® contains iodine it should not be used in patients with known or suspected iodine sensitivity. Usage is also contraindicated in patients with Hashimoto's Thyroiditis and in non-toxic nodular goitre. Iodine is absorbed systemically and patients with severely impaired renal function or with a past history of any thyroid disorder are more susceptible to alteration in thyroid metabolism with chronic Iodoflex® therapy. In endemic goitre there have been isolated reports of hyperthyroidism associated with Iodoflex®.Iodoflex® should not be used on children. Iodine can cross the placental barrier and is secreted into breast milk therefore Iodoflex® should not be applied to pregnant or lactating women.

Warnings
Iodine is absorbed systemically especially when applied to large wounds and therefore Iodoflex® should be used with care on patients who have a history of thyroid disorders.
There is a potential interaction of iodine with lithium and therefore co-administration is not recommended. Iodoflex® should not be used on dry wounds.

Sizes*
Pack size in brackets
5g (5)
10g (3)
17g (2)

* Sizes stocked in secondary care may vary. For advice contact pharmacy.

Hydrocolloids

For details of product choice, dressing size and prescribing information see NHSSB Wound Care Formulary

Rationale: Promote granulation in a clean healthy wound, encourages autolysis of necrosis/slough in a wound that requires debridement.

ACTION	RATIONALE
Must **NOT** be used in: • Diabetic foot • Peripheral vascular disease	Contraindicated. Does not facilitate daily inspection of wounds
Allow 3cm overlap from edge of wound	Ensure exudate/gel retained within the dressing
Apply directly onto granulating wound and leave in situ for 7 days	Provides optimum environment for moist wound healing
Apply directly onto sloughy/necrotic wounds	Hydrates dead tissue and promotes autolysis
Observe dressing for gel bubble formation below surface and dressing softening	Clinical indicator of when dressing requires changing
Change dressing before softened areas reach edge of dressing	Prevent leakage of gel and exudate periwound and potential maceration
Loosen dressing edges with normal saline prior to removal	Promotes easy removal of dressing
Do not renew more frequently than every 3 days	May cause stripping of the surrounding skin
Do not leave in place for more than 7 days	Manufacturers recommendation
Do not use if wound infection suspected or diagnosed	Provides optimum environment for micro-organism growth

Hydrocolloids

Description

Based on Carboxymethylcellulose and other polysaccharides and proteins, i.e. gel forming agents with elastomers and adhesives. On contact with wound exudates, the polymers absorb water and swell. A gel is formed which remains in contact with the wound surface and these moist conditions promote fibrinolysis, angiogenesis and wound healing without causing maceration. This has a characteristic odour but is easily washed off with warmed saline.

Available as sheets, and in specific shapes eg sacral.

Indications

May be used on many wound types eg leg ulcers, pressure ulcers, minor burns and various granulating wounds. Sloughy wounds will appear larger initially as debris is removed.

Contraindications

Known sensitivity to the hydrocolloid or its components.

Do not use on clinically infected wounds. Also if the dressing has to be changed more regularly than every 3 days - this is probably not the most suitable dressing.

Warnings

Inappropriate or too frequent dressing changes may result in skin irritation or stripping. Hydrocolloids may not be acceptable to vegans due to constituents.

Hydrofibre

For details of product choice, dressing size and prescribing information see NHSSB Wound Care Formulary

Rationale: Control exudate, reduce dressing changes, promote moist wound healing

ACTION	RATIONALE
Apply dressing directly to moderately/heavily exuding wounds	Absorb large amounts of fluid, form a soft coherent gel sheet which retains fluid within the dressing
Dressing must overlap wound edges by at least 1 cm	Prevent exudates leakage onto periwound skin
General wounds: Apply secondary dressing over hydrofibre eg Mesorb® **Venous leg ulcers:** Compression therapy can be applied directly over hydrofibre	Retain dressing in place/absorb excess exudate
Redress when strikethrough evident on secondary dressing	Prevent maceration of periwound skin due to exudate overloading
Irrigate dressing with normal saline if required	Reduce unnecessary pain to the patient and prevent trauma to the wound bed by adhered fibres
May be left in place for up to 7 days	Reduce unnecessary dressing change

Hydrofibre

Description

This is a soft, sterile, hydrophilic non-woven sheet composed entirely of hydrocolloid fibres (sodium carboxymethylcellulose). The characteristics of the fibre are such that it absorbs when it comes into intimate contact with liquid but not via the usual mechanism of capillary action. Absorbed fluid is retained within the structure of the fibre even under compression. Lateral wicking of fluid across the dressing is limited, thus reducing the potential for maceration of peri-wound skin. As the dressing absorbs exudate it is rapidly converted from a dry dressing to soft coherent gel sheet. Aquacel maintains a moist environment for the optimal wound healing, aids autolytic debridement, and is easily removed with little or no damage to newly formed tissue.

Indications

Indicated for the management of exuding wounds. These include chronic wounds such as leg ulcers, pressure ulcers and acute wounds such as abrasion, laceration, incision, donor sites, and first and second degree burns. The dressing is also intended for use in the management of surgical or traumatic wounds that have been left to heal by secondary intent. It is indicated for the local management of wounds that are prone to bleeding such as wounds that have been mechanically or surgically debrided, donor sites and traumatic wounds.

Contra-indications

Known sensitivity to Aquacel® or its components

Warnings

Baterial colonisation of chronic wounds is common and is not a contraindication to the use of Aquacel®. Should infection develop during the use of the dressing, appropriate antibiotic therapy should be initiated. The use of Aquacel® may he continued but the progress of the wound should be monitored carefully and all treatment should be under medical supervision.

In cavity wounds the ribbon dressing may be used to pack the wound. For wounds such as fistulae and sinus tracts, employ appropriate techniques during the insertion and removal of the dressing.

Hydrogels

For details of product choice, dressing size and prescribing information see NHSSB Wound Care Formulary

Rationale: Promotes moist wound healing, re-hydrates, debrides

ACTION	RATIONALE
Apply directly to dry non healing wound	Re-hydrates and promotes a moist wound healing environment
Apply directly to sloughy/necrotic wounds	Promotes debridement by rehydration and autolysis
Fill small cavity wound with hydrogel. Larger cavity use hydrogel sheet.	Encourage closure from wound bed outwards
Do not use on wounds producing excessive exudate	Causes dilution and removal of hydrogel
Do not use Intrasite® prior to application of larvae therapy. Purlion® may be used.	Cause adverse reaction leading to death of larvae
Warm hydrogel to room temperature prior to application	Prevent temperature reduction on the wound bed
Irrigate wound with warm saline on dressing renewal	Ensure total removal and prevent build up of hydrogel on wound bed
Leave for a maximum of 3 days	Manufacturer's recommendations: • Malodorous or infected wounds: change daily, • Dry or clean wounds: leave dressing up to 3 days
Discard any unused hydrogel	Prevent cross infection/contamination
Always apply secondary dressing, e.g. semi permeable film (eg. Opsite®)	Facilitates hydration.

Hydrogels

Description

Hydrogels contain insoluble polymers which swell and increase in volume, until saturated, facilitating epithelialisation by maintaining a moist environment on the surface of the wound.

Some hydrogel sheets are available which have a fixed structure.

Indications

May be applied to many wound types including dry, sloughy or necrotic wounds and are particularly useful for cavity wounds. May be used for infected wounds *(except sheets)* - systemic antibiotics may be appropriate.

Contraindications

Wounds producing excessive amounts of exudate may dilute and remove gel from wound onto secondary dressing. Sheets have limited fluid handling capacity.
Do not use where anaerobic infection is suspected, may support growth of micro-organisms.

Some gel contains Propylene Glycol – a potential sensitising agent. Discontinue treatment if signs of adverse reaction develop.

Warnings

Interval between dressing changes depends upon the state of the wound.
See Hydrogels table on previous page.

Metronidazole Gel

For details of product choice and prescribing information see NHSSB Wound Care Formulary

Rationale: Reduce wound odour and reduce anaerobic colonisation

ACTION	RATIONALE
Apply metronidazole gel directly onto wound surface	Ensures optimum contact with micro-organisms on wound bed
Use as prescribed on wound, Manufacturers recommend twice daily application	Provides sufficient dosage
Do not allow dressing to dry out	Prevents trauma to the wound bed on dressing removal
Irrigate wound with normal saline when changing dressing	Total removal of gel necessary to ensure correct dose applied on further treatments
Consider appropriate treatment length	Reduce potential risk of inducing resistant micro-organisms

Metronidazole Gel

Description
Metrotop® is a colourless, transparent, hypromellose gel, containing 0.8%w/v Metronidazole BP and Benzalkonium Chloride Solution BP 0.02%v/v. The gel is used alone or as an adjunct to systemic therapy to combat infection in malodorous wounds. Primarily used for the management of anaerobic infections, laboratory studies have shown that Metrotop® is also active against a range of aerobic bacteria. It is likely therefore, that the gel may be of value in combating odour caused by these organisms also. The moist environment produced by the gel may also help to promote wound debridement by facilitating autolysis of slough and necrotic tissue.

Indications
Metrotop® has a product licence for use as a deodoriser in the management of malodorous fungating tumours. It can also be used in the treatment of other types of malodorous wounds e.g pressure areas and leg ulcers, found on microbiological investigation to be clinically infected with organisms sensitive to Metronidazole.

Contraindications
Metrotop® should not be applied to individuals who are hypersensitive to metronidazole.

Warnings
The use of systemic Metronidazole may produce a number of undesirable effects and although there is no evidence that significant amounts of the drug are absorbed following topical application, potential users should consult the literature for further information if large quantities of gel are to be applied over extended periods. Theoretically Metronidazole may be absorbed following topical application. The manufacturers therefore recommend that the gel is not used during pregnancy or lactation unless considered essential by the clinician.

Note
Topical Metronidazole can be rendered ineffective if wound is producing high amounts of exudate. Systemic Metronidazole may be an option if patient can tolerate it.

Non or low adherent dressings

For details of product choice, dressing size and prescribing information see NHSSB Wound Care Formulary

Rationale: Prevent adherence of dressing to wound bed tissue, reducing trauma on removal.

ACTION	RATIONALE
Apply directly onto clean, lightly exuding, superficial wound bed tissue	Prevents trauma to new tissue on removal of dressing
Allow 2cm overlap from edge of wound	Prevents trauma from secondary dressing removal
Moisten dressing with warm normal saline before removal	Sometimes adherence can be a problem
Renew dressing as indicated by exudate level. May be left on the wound for a maximum length of 3-4 days at a time	Prevent unnecessary dressing removal promoting the optimum environment for moist wound healing
Apply secondary dressing e.g. gauze, Mesorb® kept in place with tape. May also be used beneath compression bandages.	To absorb excess exudate and retain dressing in place.

Non or low adherent dressings

Description

NA ultra® consists of a knitted open structure made from continuous monofilament viscose yarns onto which has been polymerised a silicone coating. The dressing acts as a low adherence primary wound contact layer that can be easily removed from wound surface without causing pain or trauma. The silicone coating does not occlude the pores of the fabric but allows free drainage of exudate from the wound, thus preventing tissue maceration.

Indications

NA ultra® is indicated for the management of clean, lightly exuding, superficial wounds ie leg ulcers, pressure ulcers, burns, cuts and abrasions. Prevents adherence of dressing to wound bed reducing trauma and pain at dressing change. Its non adherent properties reduce the risk of damage to new capillary loops of granulation tissue.

Contra-indications

Allergy to silicone (use NA dressing® instead).

Non adherent silicone foam dressing

Product choice: Currently only brand available: Mepilex®

Rationale: Absorbs exudate and maintains a moist wound-healing environment whilst minimising the risk of maceration

ACTION	RATIONALE
Apply directly onto wound bed tissue	Contact with wound bed tissue provides optimum conditions for dressing effectiveness
Allow 2 cm overlap from edge of wound	Ensures exudate retained within the dressing
Mepilex® may be cut before removal of plastic protective film	To fit size and shape of wound
Monitor for lateral strikethrough at edge of dressing	Indicates the need to change dressing
Secondary dressing not usually indicated *can be used under compression bandaging	The plastic membrane on the outer surface of the dressing will prevent the passage of exudate
Note: An adhesive bordered version (Mepilex Border®) is available which can be used when showering	

Non adherent silicone foam dressing

Description

Mepilex® is an absorbent, atraumatic dressing made from polyurethane foam. The outer surface of the foam is bonded to a vapour-permeable polyurethane membrane, which acts as a barrier to liquid and microorganisms. The membrane, which has a wrinkled appearance, is applied in this way to accommodate the slight swelling that occurs as the dressing absorbs exudate. The wound contact surface of Mepilex® is coated with a layer of soft silicone that does not stick to the surface of a wound or cause trauma to delicate new tissue upon removal.

This soft silicone layer is also slightly tacky, which facilitates application and retention of the dressing to intact skin, but does not cause epidermal stripping or pain on removal. This gentle adhesion also tends to prevent maceration by inhibiting the lateral movement of exudate from the wound on to the surrounding skin.

Indications

Mepilex® is suitable for dressing many types of exuding wounds including leg and pressure ulcers, and traumatic wounds resulting in skin loss. It may also be used under compression bandaging.

Contra-Indications

The manufacturer has identified no absolute contra-indications to the use of Mepilex®.

Warnings

The presence of clinical infection does not preclude the use of Mepilex® provided that appropriate antimicrobial therapy is also provided. Sloughy wounds dressed with Mepilex® may initially appear to increase in size due to autolytic debridement promoted by the moist conditions produced beneath the dressing. This is normal and to be expected.

Sizes*

Mepilex® is available in a range of sizes as follows (pack size in brackets):
10cm x 10cm (5)
15cm x 15cm (5)
20cm x 20cm (5)
10cm x 20cm (5)

* Sizes stocked in secondary care may vary. For advice contact pharmacy.

Odour Absorbing Dressings

For product choice, dressing sizes and prescribing information see NHSSB Wound Care Formulary

Rationale: Absorb toxins from the wound reducing odour

ACTION	RATIONALE
The information in this table relates to Primary dressings only ie dressings which are designed to be applied to wound directly. *For further information, see next page*	
Apply directly onto the wound surface	Facilitate absorption of toxins responsible for wound odour.
Do not cut the dressing to the shape of the wound prior to application	Prevent the release of particles and fibres into the wound bed tissue from the dressing components
Renew Carboflex® and secondary dressing daily on infected wounds	Facilitate daily cleansing and removal of infected matter on the wound surface
Leave dressing in place for up to seven days as the wound becomes cleaner	As exudate and bacteria reduce, the dressing continues to be effective, preventing bacterial colonisation of the wound
Discontinue use when malodour subsides	Inappropriate use of product
NOTE: Do not place Actisorb silver 200® in direct contact with ointment or grease	The activity of the dressing will be greatly reduced

Odour Absorbing Dressings

Descriptions

Odour absorbing dressings may be:

Primary - intended to be placed in direct contact with the wound
e.g. Actisorb Silver 200®
Carboflex®

Or **Secondary** - placed over existing primary dressing
e.g. Clinisorb®

Dressings currently included in the Formulary: Clinsorb, Carboflex, and Actisorb Silver 200®.
(NB: Actisorb 200® is not routinely stocked in secondary care)

Carboflex® is a five layer dressing. It consists of a layer of alginate and carboxymethycellulose fibres, bonded to a plastic film with perforations. These perforations facilitate the passage of liquid in one direction only. Behind this film is a piece of charcoal cloth and an absorbing layer of mixed fibres. A final perforated plastic layer completes the dressing.

Actisorb silver 200® consists of activated carbon, impregnated with metallic silver. The carbonised fabric is enclosed in a sleeve of spun, bonded, non woven nylon. This is sealed to facilitate handling and reduce particle and fibre loss. Bacteria are killed by the silver. Silver is active against many pathogenic organisms. The dressing absorbs toxins and wound products responsible for wound odour.

Clinisorb® Consists of charcoal cloth, produced by carbonising and activating a knitted viscose rayon fabric, sandwiched between 2 layers of calendered viscose rayon. Both sides of the dressing are identical, therefore it does not matter which surface is placed downwards. The dressings may also be shaped or cut to size if required.

Indications

Carboflex® is indicated for use in malodorous heavily exuding wounds.
Actisorb silver 200® is particularly recommended for malodorous, infected wounds.
Clinisorb® is indicated for malodorous wounds in association with an appropriate primary dressing.

Contra-indications

Do not use on dry wounds covered with a scab or a hard eschar or on wounds that have a tendency to dry out, as further tissue damage may result on traumatic removal.

Warnings

Carboflex®: Do not use on individuals with known sensitivity to any of the dressing components.

Actisorb 200®: Do not use on individuals with a known sensitivity to nylon.

Polyurethane Foam Dressing

For details of product choice, dressing size and prescribing information see NHSSB Wound Care Formulary
NB: Product choice depends on amount exudate

Rationale: Used to treat wounds producing exudate

ACTION	RATIONALE
Apply as per manufacturer's directions (Some have a specific side which should be in contact with the wound)	Promote adequate absorbency
Overlap wound margins with dressing by at least 3cm	Keep exudate locked away from peri wound area, preventing maceration
Monitor for lateral strikethrough at edge of dressing	Indicates the need to change dressing
Choose dressing appropriately from variety available	Ensure ease of application, optimum dressing function and patient comfort
Do not use adhesive varieties on patients with friable skin	Prevents unnecessary damage to skin on dressing removal

Polyurethane Foam Dressing

Drescription

Allevyn® foam dressing consists of a layer of hydrophilic polyurethane foam bonded to a pink semi-permeable polyurethane film. This pink layer should be uppermost with cream layer in contact with skin. The film is permeable to moisture vapour but provides an effective barrier to water. It also prevents the passage of micro-organisms through the back of the dressing. The wound contact surface of the dressing is covered with a perforated film preventing adherence to granulation tissue.

Lyofoam® consists of a soft, hydrophobic, open-cell polyurethane foam sheet approximately 8mm thick. The dressing contact layer (shiny side) has been heat treated to collapse the foam cells enabling liquid absorption by capillarity. The dressing is permeable to gases and water vapour but resists the penetration of aqueous solutions and wound exudate.

Indications

Suitable for use on a variety of exuding wounds. The amount of exudate will dictate the product chosen. For Product choice, refer to NHSSB Wound Care Formulary.

Contra-indications

Not indicated for use on dry wounds covered with a scab or necrotic tissue. The necrosis should first be removed, if clinically indicated, prior to application of foam.

Warnings

Do not use on patients with known sensitivity to any of the dressing components.

Povidone-Iodine Sheet

For details of product choice, dressing size and prescribing information see NHSSB Wound Care Formulary

Rationale: Antimicrobial agent only for prevention or treatment of infection

ACTION	RATIONALE
Exclusion of use for patients: Pregnant/breastfeeding Children under 6 months Iodine allergy Impaired renal function	Possible effects of elevated serum iodide levels on foetus or neonate
Apply directly to wound surface	Ensure contact with wound bed to activate dressing properties
Apply secondary dressing over Povidone – Iodine sheet	Retain dressing in place, absorbs exudate
Remove Povidone – iodine dressing with warm normal saline	Reduce trauma at dressing change
Re-dress when Povidone – iodine sheet dressing turns white over wound bed area	Indicates loss of efficiency
Dressing change daily or alternate days	Loss of antimicrobial activity if left in position for longer than two days
Review after 7 days	To avoid inappropriate use
Do not use as a standard non-adherent dressing	To prevent over use of antimicrobial products use alternative e.g. NA Ultra®

Povidone - Iodine Sheet

Description
Inadine® is a knitted viscose fabric impregnated with a polyethylene glycol base containing 10% povidone-iodine. Povidone-iodine is an anti-microbial agent.

Indications
Indicated for the prophylaxis and treatment of infection in wounds.

Contra-indications
This dressing should not be used on patients who are sensitive to Iodine or Povidone-iodine.

Warnings
Do not use in pregnant or lactating mothers, children under 6 months of age or in patients with renal insufficiency. In diabetics or others with renal insufficiency, blood T3 and T4 levels should be monitored to avoid accumulation of iodine.

May interfere with thyroid function and Lithium levels. Monitor serum Iodine levels and thyroid function tests if using on neonates or young children.

Protease Modulating Matrix

Current only brand available: Promogran®

Rationale: Encourage granulation in a clean wound

ACTION	RATIONALE
Cut dressing to the size of the wound	Dressing needs to be in contact with the wound bed to ensure it biodegrades
Apply directly to wound bed	Facilitates dressing absorption
Apply dressing dry if wound exudate present	Facilitates liquid absorption and forms biodegradable gel
Wet dressing with warm normal saline if minimal wound exudate present	Simulate the presence of wound exudate promoting maximum effectiveness of dressing
Cover with a low adherent secondary dressing	Reduce damage to new tissue on dressing renewal due to biodegradable nature of dressing
Apply appropriate absorbent dressing if exudate present	Remove excessive exudate from the wound bed and prevent maceration
Leave in place undisturbed for 2-3 days in a lightly exuding wound	Ensure maximum clinical progression and cost effectiveness of dressing

Protease Modulating Matrix

Promogran® consists of a sterile, freeze dried matrix composed of collagen and oxidised regenerated cellulose (ORC), formed into a sheet approximately 3 mm thick cut into hexagonal pieces.

In the presence of wound exudate the matrix absorbs liquid and forms a soft, conformable, biodegradable gel that physically binds and inactivates matrix metalloproteases (MMPs), which have a detrimental effect on wound healing when present in excessive quantities.

The gel also binds naturally occurring growth factors within the wound and protects them from degradation by the proteases, releasing them back into the wound in an active form as the matrix is slowly broken down.

Indications

Promogran® is indicated for the management of all types of chronic wounds that are free of necrotic tissue and visible signs of infection. These include leg ulcers, both venous and arterial in origin, pressure sores and ulcers that occur on the feet of patients with diabetes. The matrix, which also has haemostatic properties, can be used in conjunction with compression therapy.

Contraindications

Promogran® is contraindicated in patients with known hypersensitivity to either of the components of the product i.e. ORC and collagen. If signs of a sensitivity reaction develop during use, treatment should be discontinued.

No safety issues associated with the use of Promogran® in the treatment of pressure ulcers, venous ulcers and diabetic ulcers have been identified to date.

Warnings

If infection develops during treatment, appropriate antimicrobial therapy should be initiated.

No data have been generated to date on the use of this product with topical medicaments.

Sizes

Promogran® is available in two hexagonal sizes*, 28cm^2 and 123cm^2 (pack size 10).

* Sizes stocked in secondary care may vary. For advice contact pharmacy.

Rapid Capillary Dressing

Product choice: Currently only brand available: Vacutex®

Rationale: Rapid capillary action dressing for all wound types. Vacutex® draws, absorbs and contains slough, necrotic tissue, exudate or infection within the middle layer of the dressing

ACTION	RATIONALE
Prepare wound following local protocol Cut dressing to size	To fit exact needs of each wound and good wound bed contact is essential to aid process of dressing
At least two layers must be used depending on exudate level and add additional layers as necessary	To manage exudate and avoids leakage or strikethrough
A non-adherent contact layer should be used on low exuding wounds and under compression bandages	To reduce “drawing” sensation
Cover with film dressing **Exception:** can be used under compression bandaging for venous leg ulcers *without* the need for film dressings	To accelerate debridement of necrotic/sloughy wounds
Patients with fragile skin: ensure the film dressing is cut to to the same size as the Vacutex®, with no overlap onto surrounding skin	To reduce risk of skin tears.
Dress daily for first 6 - 10 days	To manage exudate, then reduce frequency of dressing changes as clinically indicated
Vacutex® should not be used on arterial bleeds or fistula	Due to the rapid capillary action of the dressing

Rapid Capillary Dressing

Description

Vacutex® consists of a three-layered construction of polyester filaments and poly/cotton fibres, formed into a 3mm layered dressing.

In contact with the wound exudate Vacutex® causes an accelerated capillary 'pulling' action on wound interfaces, lifting and transporting exudate and interstitial fluid(s) to a central 'locking' layer until saturation, and then on to a third absorbent layer.

The concept behind this advanced wound dressing is to lift and transport potentially bacteria-laden exudate, slough, and necrotic debris away from the wound bed.

Vacutex® creates autolysis within the wound environment that quickly breaks down and lifts necrotic eschar, slough, and debris.

Vacutex® can absorb up to 30 times its own weight.

Indications

Vacutex® is a simple, unique and innovative dressing with versatility across a wide range of wounds from minor to chronic, both wet and dry. Vacutex® can also be used under compression bandaging.

Contra-indications

Vacutex® is contraindicated where arterial bleeds are suspected, heavily bleeding wounds, dynamic vascular fungating wounds, or where bone and/or tendon are exposed.

Sizes

Vacutex® is available in the following sizes*. Pack sizes in brackets.

5cm x 5cm (10)
10cm x 10cm (10)
10cm x 15cm (10)
10cm x 20cm (10)
15cm x 20cm (10)
20cm x 20cm (10)

* Sizes stocked in secondary care may vary. For advice contact pharmacy.

Semi-permeable Adhesive Film Dressings

For details of product choice, dressing size and prescribing information see NHSSB Wound Care Formulary

Rationale: Facilitates visual examination of the wound without disturbance. Promotes a moist wound healing environment.

ACTION	RATIONALE
Apply to clean, dry, unbroken skin that is friable or identified as at risk of pressure damage	Protect against friction, shear and moisture
Do not use on inflamed skin	Trauma can occur when dressing is being removed
Do not use on wounds producing excessive amounts of exudate	Excessive exudate beneath dressing can lead to maceration of peri wound area
If being used as skin protection frequent dressing change not necessary if skin is intact	Reduce trauma to the area by unnecessary removal
Apply as a secondary dressing for retention	To facilitate decision making regarding strikethrough and need for redressing
Moisten edges with normal saline	Aids easy removal of dressing

Semi-permeable Adhesive Film Dressings

Semi-permeable description

Semi-permeable adhesive film dressings consist of a thin, transparent sheet of polyurethane coated with a thin layer of acrylic adhesive. The dressing is permeable to water vapour and oxygen and impermeable to micro-organisms. This produces an effective barrier to external contamination. Scab formation is prevented under these conditions promoting epidermal regeneration at an enhanced rate.

Indications

Semi-permeable adhesive film dressings can be used in the management of shallow wounds, minor burns, donor sites, post operative wounds, abrasions and minor lacerations. These dressings can also be used to protect the skin from friction or continuous exposure to moisture, preventing breakdown.

Contraindications

These dressings are not recommended for use on deep wounds, infected wounds or heavily exuding wounds.

Warnings

Removal can be traumatic to the surrounding skin. Observe peri wound closely for maceration.

Soft Silicone Dressing

For details of product choice, dressing size and prescribing information see NHSSB Wound Care Formulary

Rationale: Minimises trauma to the wound bed, reduces unnecessary dressing change

ACTION	RATIONALE
Moisten gloves with sterile water / saline before application	Reduces the dressing sticking to fingers thus facilitating application
Apply directly to wound surface	Prevents damage to new tissue and pain for the patient on removal
Overlap the wound margins by at least 2 cm	To ensure easy removal
If more than one piece is required the dressing should NOT be overlapped	Ensure that pores are not blocked so exudate can be removed from wound bed
Apply secondary dressing. If strikethrough occurs this can be changed without removal of silicone dressing	Absorbs exudate
Dressing may be left up to 7 days.	Reduces unnecessary pain to patient and prevents trauma to the wound bed
If used for fixation of skin grafts, do not change before 5th day post application	To reduce trauma to wound bed by protecting delicate new tissue
NOTE: The non or low adherent dressing (NA Ultra® also contains silicone)	

Soft Silicone Dressing

Mepitel® is a porous, semi-transparent, low adherent wound contact layer, consisting of a flexible polyamide net coated with soft silicone.

The silicone coating is slightly tacky, which facilitates the application and retention of the dressing to the peri-wound area. This gentle adhesion also tends to prevent maceration by inhibiting the lateral movement of exudate from the wound on to the surrounding skin.

The nature of the bond that forms between Mepitel® and the skin surface is such that the dressing can be removed with minimum pain and without damaging delicate new tissue.

Mepitel® is non-absorbent, but contains apertures or pores approximately 1mm in diameter that allows the passage of exudates into a secondary absorbent dressing.

Indications

Mepitel® is used in the management of wounds where adherence of a dressing to the underlying tissue represents a particular clinical problem. Typical applications include skin tears or abrasions, surgical excisions, second degree burns, blistering conditions such as pemphigoid epidermolysis bullosa, lacerations, partial and full thickness grafts, and skin damage following radiotherapy or steroid therapy.

Contra-indications

Silicone allergy

Warnings

As with all types of dressings, wounds should be regularly monitored for signs of infection or deterioration. When used on bleeding wounds, or wounds producing high viscosity exudate, Mepitel® should be covered with a moist absorbent dressing pad.

Sizes*

Pack sizes shown in brackets
5cm x 7cm (5)
8cm x 10cm (5)
12cm x 15cm (5)
20cm x 30cm (5)

* Sizes stocked in secondary care may vary. For advice contact pharmacy.

Silver Dressings

Formulary choice: *Aquacel Ag®*
For information on Silver sulphadiazine see NHSSB Wound Care Formulary

Rationale: Decontaminate wounds and inhibit the growth of certain bacteria

ACTION	RATIONALE
Silver dressings should be applied to colonised or infected wounds	Activated silver is bactericidal
Apply silver dressings directly to the wound bed surface	Ensure direct contact with micro-organisms facilitating their destruction
Do not apply silver dressings onto a dry wound bed	Dressings impregnated with silver are activated by wound exudate
Use these products with caution on patients with renal dysfunction	Absorbed silver may not be sufficiently eliminated from the body if kidney function impaired
Do not use for prolonged periods	Argyria reported with excessive use
Review dressing every 3 days	To ensure consistent reduction of bacterial load

Recommended secondary dressings: Aquacel®,Gauze,Mesorb®.
Aquacel Ag® can also be used underneath compression bandages

Silver Dressings

Description

Silver containing products are impregnated with silver metallic ions. When these products are placed on a wound the silver is activated and becomes antimicrobial. It originally came in the form of silver sulphadiazine cream but is now available in the form of impregnated dressings. It may act in one of two ways over a period of time:

a. deliver ionic silver to the wound, targeting bacteria
b. absorb infected matter and expose it to ionic silver within the dressing

These dressings can be placed directly onto the wound bed. Frequency of dressing change varies between products. Pure elemental silver is inactive but silver ions are highly reactive. Silver is continuously available when the dressing is in place. This provides an antimicrobial barrier, protecting the wound.

Indications

Dressings containing silver have been developed due to their anti-microbial properties. Silver is inert in its metallic form but becomes reactive in the presence of body fluids and wound exudate. Absorbed activated silver is lethal to many pathogenic fungi and bacteria.

Contra-indications

Patients with known sensitisation to silver products. Prolonged use can lead to absorption. The kidneys play a major role in eliminating silver from the body therefore use with caution on patients with renal dysfunction. Silver products have been linked with low white blood cell counts and should be discontinued if this occurs.

Aquacel Ag® Sizes*

Pack sizes shown in brackets
5cm^2 (10)
10cm^2 (10)
15cm^2 (5)
20cm x 30cm (5)

Ribbon
2g x 45cm (5)

* Sizes stocked in secondary care may vary, for advice contact pharmacy.

Specialist Products

This Wound Management Manual provides detailed and complementary information to that contained within the NHSSB Wound Care Formulary. Whilst the formulary contains products available in primary and secondary care it does however designate a small number of these products as “Specialist”.

The following products would only be recommended by a Specialist Practitioner or Consultant:

Specialist Products
Larvae
Vacuum Assisted Closure (VAC®)
V.E.C. High Compression Bandage

Why are these different?
Specialist advice is needed to assess if the above treatments are appropriate. There are also training issues around the newer therapies. Once a specialised product has been initiated, the ongoing care can often be taken over by other appropriately trained staff, under the specialist’s guidance.

As VAC® is not available on prescription in primary care, this is currently funded within the NHSSB area via a separate mechanism, and this stipulates assessment from a specialist. This assessment is also needed for all VAC® initiated by secondary care.

Practical information on the use, indications, contraindications and other relevant details can be found on the following pages.

Larvae Therapy (Biosurgery)

For use on specialist recommendation only. Please refer to earlier section on Specialised Products

Rationale: Debride the wound of sloughy, necrotic or infected material

ACTION	RATIONALE
APPLICATION	
If using a hydrogel as a debriding agent prior to application of larvae ensure that Purilon® brand is used	Larvae adversely affected by other hydrogel residues which contain propylene glycol
Apply hydrocolloid dressing to the peri wound skin	Retain the larvae within the wound and protect the peri wound area
Cut nylon net to a size adequate to cover the wound and allow it to be taped securely	Retain larvae and allow exudate to pass through to secondary dressing
Place sized net on top of sterile gauze from the dressing pack	Capture the larvae on the nylon net ready to go onto the wound
Add sterile saline to the container of larvae	Agitate the larvae from the sides and the top of the container tube
Pour suspended larvae onto the nylon net	Direct the larvae into the middle of the nylon net and moisten the gauze
Invert the net and the moistened gauze	Facilitate placement of the larvae in the desired area
Secure the nylon net to the surrounding hydrocolloid with tape	Retain the larvae within the wound area
Place the moistened gauze on top of the secured nylon net	Young larvae are delicate and need to be kept moist
IF USING BIOBAG®, FOLLOW INSTRUCTIONS FROM HERE	
Place a suitable absorbant secondary dressing on top eg: Release® plus either ADpad or surgipad	Absorb the increased exudate during the debridement process

ACTION	RATIONALE
Cover secondary dressing with a bandage or tape	Retain the dressing
Dispose of any unused larvae according to the Trust policy (see disposal)	Unused larvae are no longer considered to be sterile
Leave larvae on the wound undisturbed for a period of three days	Recommended time needed to be effective
Inspect the dressing daily while leaving the primary dressing undisturbed	On rare occasions larvae have caused bleeding in the wound and must be removed
Secondary dressing may be changed if strikethrough occurs within three days	Excessive amounts of exudate can be produced during the liquidisation of necrotic tissue
Assess the patient for increased pain in the wound	If pain is experienced ensure adequate analgesia
To remove the larvae, firstly remove the outer bandage and dressing	To expose the primary dressing
Remove the hydrocolloid frame and the primary dressing together as one unit	Facilitate removal of most of the larvae of the wound bed
DISPOSAL **(a) in hospital setting**	
Use closed disposable suction unit to remove any remaining larvae (applicable to loose larvae only)	Ensure complete removal and easy disposal of active larvae
Place soiled dressing materials and suction in clinical waste bag, double bag and tag	Identify material as clinical waste following Trust protocol

ACTION	RATIONALE
Place clinical waste in a burn box, secure lid and sign	Secure active larvae within a closed container preventing contamination
(b) Community setting	
Soiled dressing materials and remaining larvae should be double bagged, tied and placed in domestic waste.	Ensure safe disposal of larvae and prevent contamination.
FINAL STAGES (Both hospital and community)	
Reassess the wound for evidence of any remaining slough or necrotic tissue	Consider further application of larvae if debridement incomplete
If no evidence of slough or necrosis re-dress wound with appropriate dressing	Promote moist wound environment and encourage the healing process

Larvae Therapy (Biosurgery)

Description
Sterile larvae for wound management come from the greenbottle Lucilla Sericata. In optimum conditions they produce powerful proteolytic enzymes breaking down necrotic, sloughy tissue. The larvae subsequently ingest this degraded, liquefied tissue as a source of nutrient. When initially applied to the wound the larvae are just 2-3mm in length. On removal from a necrotic wound their size may be increased to 8-10mm in length.

Indications
Sterile larvae are suitable for use on a variety of sloughy necrotic wounds that require debridment. Infected, malodorous wounds are also indicated as larvae combat odour while ingesting and killing bacteria present in the wound.

Contraindications
Larvae should not be applied to wounds close to large blood vessels, bleeding wounds or wounds that communicate with a body cavity or internal organ.

Warnings
If the larvae cause bleeding in the wound the treatment should be removed and the wound reassessed. Pain associated with the larvae should result in treatment being discontinued.

Storage
Larvae should be used within 12 hours of receipt. If the time delay between receipt and use is longer the larvae should be stored in a cool, dark place at a temperature of 8-10 degrees. Sterile saline should be added to the bag containing the larvae vial for storage to prevent the larvae drying out.

Larvae Therapy (Biosurgery)
Additional Information for Community

Background
The wound cleansing properties of larvae (maggots) have been recognised for centuries and a brand of sterile larvae (LarvE®) is now available for use in wound management. They can currently be prescribed by GPs (*not* nurse prescribers) but as this is a specialist treatment, treatment in community should only be on the recommendation of a specialist.

Prescribing Information
Larvae (LarvE®) are classified as a drug, not an appliance, therefore they are not listed under wound care products in the Drug Tariff. LarvE® are supplied in different quantities/presentations depending on the site of the wound to be treated and amount of slough. A guide to pack size required and other useful information is available on the company website **www.larve.com** (NB: *note spelling carefully*).

Information for community pharmacists
Each pack includes LarvE® net which retains the larvae within the wound site. This does not need to be prescribed separately. There is no CSA code for LarvE® at present (Jan 05).

Larvae are not available from normal pharmaceutical wholesalers - they must be obtained direct from the company (BRU). Deliveries are made Tuesday to Saturday before noon and it is strongly recommended that the larvae are kept in a **domestic refrigerator 8-10 C** (lower temperatures as found in medicine refrigerators may kill the larvae) to await collection. As the product is supplied in three layers of packaging and held in a courier bag there is no chance of the contents “escaping” to contaminate other contents held in the fridge! It is strongly recommended that larvae are applied to the wound on the day they are delivered to the pharmacy. Storage for any longer may seriously affect their viability and hence their efficacy.

Larvae should be left on the wound undisturbed for three days. Patients should be reassured that although the exudate from the wound is red and bloody, this is a positive result and nothing to worry about.

Disposal
A disposal container is supplied with LarvE®. In community, it is accepted that the nurse may then dispose of this according to local policy - usually “double-bagging” before placing in domestic waste. For clarification on specific arrangements in your area, contact your community nursing team or Tissue Viability Nurse Specialist.

Further information
Biomedical Research Unit (BRU) Tel: (01656) 752820
Email: maggot-info@smtl.co.uk

Condensed from Thomas S. *Advice for community pharmacists on how to order and dispose of maggots.* Pharmaceutical Journal, 2004, 272: 222

Vacuum Assisted Closure

For use on specialist recommendation only. Please refer to section on Specialised Products
Formulary choice: *VAC®*

Rationale: To promote wound closure, reduce dressing change and enhance patient comfort

ACTION	RATIONALE
Apply a non adherent dressing to the wound bed if indicated	Prevent damage to new tissue and pain for the patient on removal of the VAC® dressing
Apply appropriate size of sponge to wound, cutting to fit if necessary	Ensure wound is sufficiently covered enhancing effectiveness
If more than one piece of foam is applied to wound, document number of pieces on patient record eg. NHSSB open wound observation chart	To ensure complete removal of dressing, thus preventing complications eg. sepsis
If more than one sponge is used they must all touch	Facilitate continuous negative pressure to the whole wound
Frame wound with hydrocolloid if clinically indicated	To prevent damage to surrounding tissue
Apply VAC® film dressing directly on top of the sponge overlapping the wound by approx 3cm	Seal wound and facilitate negative pressure application
Cut a hole in the film dressing equivalent to the size of the suction catheter	To facilitate application of suction catheter
Place suction catheter over the hole and seal	Suction catheter must touch the sponge to ensure pressure application
Connect suction tubing to tubing of canister	Establish closed system
Insert canister into VAC® pump and click into place	Establish VAC® connection
Open clamp on suction tubing and canister tubing	Facilitate continuous drainage

ACTION	RATIONALE
Use guide arrows on touch screen to set required mmHg pressure and select mode of action	Ensure suitable negative pressure and mode of action applied to the wound
Use touch screen therapy button to turn VAC® system on/off	Establish connection or disconnection of VAC® system
Observe sponge for reduction into the wound	Indicates established connection and sealed wound
If sponge does not reduce, examine film or dressing for gaps or areas of non adherence	Identify air leaks in the system
Cover areas where air leak detected with more clear film dressing	Ensure sealing of the wound and negative pressure application
Leave VAC® system in place for 48-72 hours if removal is not clinically indicated	Facilitate optimum effectiveness of system and reduce unnecessary dressing change
Continually observe, record condition of peri wound skin, apply protective hydrocolloid if needed	Indicative of exudate leakage or allergic reaction to clear film dressing
Soak sponge with warmed normal saline if adherence to wound bed evident on removal	Prevent damage to new tissue and pain for the patient on removal
Dispose of used dressings and canisters according to the Trust clinical waste policy	Reduce risk of cross infection

Vacuum Assisted Closure (VAC®)

Vacuum assisted closure (also called vacuum therapy, vacuum sealing or topical negative pressure therapy) is a sophisticated development of a standard surgical procedure, the use of vacuum assisted drainage to remove blood or serous fluid from a wound or operation site.

A piece of foam with an open-cell structure is introduced into the wound and a wound drain with lateral perforations is laid on top of it. The entire area is then covered with a transparent adhesive membrane, which is firmly secured to the healthy skin around the wound margin. When the exposed end of the drain tube is connected to a vacuum source, fluid is drawn from the wound through the foam into a reservoir for subsequent disposal.

The plastic membrane prevents the ingress of air and allows a partial vacuum to form within the wound, reducing the volume of the foam and facilitating the removal of fluid. The foam ensures that the entire surface area of the wound is uniformly exposed to this negative pressure effect, prevents occlusion of the perforations in the drain by contact with the base or edges of the wound, and eliminates the theoretical possibility of localised areas of high pressure and resultant tissue necrosis.

Indications

Acute and traumatic wounds
Sub acute wounds i.e. dehisced incisions
Pressure ulcers
Chronic open wounds
Meshed grafts
Flaps
Diabetic foot ulcers
Venous stasis ulcers

Contraindications

Fistulas to organs or body cavities
Necrotic tissue in eschar
Osteomyelitis (untreated)
Malignancy in the wound

In addition, and for obvious reasons, special precautions should be observed when using the technique where haemostasis is difficult, in the presence of active bleeding or in the treatment of patients receiving anticoagulant therapy.

The cost of VAC® therapy is significant. In addition to the purchase cost or hire charges of the machine itself, it is necessary to purchase disposable foam dressings and drainage tubes, canisters and adhesive drapes, which together could cost in excess of £70 per day.

Note:

VAC® is **ONLY** available following consultation with a specialist.

V.E.C. High Compression Bandage

For use on specialist recommendation only in exceptional circumstances. For full guidance on compression bandaging and preferred products see NHSSB Woundcare Formulary.

Description

Tensopress® has been classified as a Type 3c 'High Compression Bandage'. It consists of a warp-knitted bandage composed of cotton and viscose incorporating elastomeric threads made from polyurethane. A yellow line runs up the centre of the bandage. The fabric is soft and light, and possesses a degree of lateral extensibility that makes the product very conformable and easy to apply. Tensopress® is highly elastic, by virtue of the elastomeric threads, which also give it considerable 'power'.

Indications

Tensopress® is a powerful compression bandage that my be used to apply a range of sub-bandage pressures. It is primarily intended for the application of controlled levels of pressure in the treatment of venous ulcers and other conditions where compression therapy is required, such as sclerotherapy. Because the bandage has the ability to 'follow in' or maintain compression on limbs as they decrease in circumference, it can be used to reduce existing gross oedema, unlike products made from cotton or lightweight nylon fabrics. It should only be used in patients who have had a full assessment of lower limbs (including ABPI).

Contra-indications

As with all compression bandages, Tensopress® should not be applied to patients who have marked ischaemia or impaired arterial blood supply. **The inappropriate use of the bandage in these situations could have serious consequences.**

Warnings

Because of the power inherent in Tensopress® and its ability to maintain high levels of compression over extended periods, care must be taken to ensure that the bandage is not applied with excessive tension. It is also important to ensure that it is applied with no more that a 50% overlap, to do otherwise will result in the formation of excessive pressure, which in turn may lead to areas of tissue damage.

Sizes

10cm x 3m
Available singly

Products to Avoid

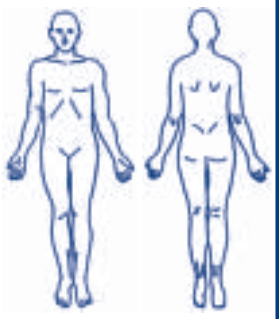
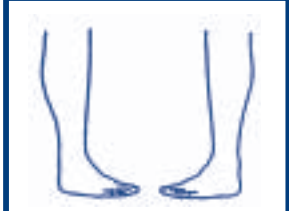
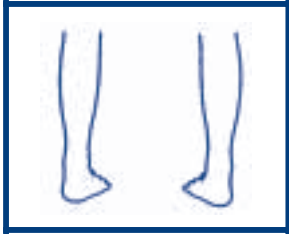
PRODUCT	RATIONALE
Alcoholic solutions	Delay wound healing
Cetrimide Eg Sterets®, Tisept®, Steripod yellow®, Travasept 100®	Toxic effect on fibroblasts
Dyes Eg Crystal violet, Gentian violet	Carcinogenic
Hydrogen peroxide	One fatal report of air embolus after injecting into a sinus
Inappropriate wound cleansing	Ritualistic cleansing is NOT required Cleanse ONLY if debris or foreign material present Warm Sodium Chloride 0.9% (at room temperature) is the cleansing agent of choice Other agents may be necessary for dirty traumatic wounds Irrigate the wound. Do NOT use cotton wool or swabs
Ribbon gauze	Not recommended for wound packing. Many cavity dressings are available as alternatives
Sodium hypochlorite Eg Eusol®, Milton®	Application and removal is painful. Also delays wound healing by destroying cells and capillaries.
Topical antibiotics Eg. Fusidic acid, Cicatrin® (Neomycin/Bacitracin zinc), Silver sulfadiazine	To minimise resistance. Systemic antibiotics should be used when infection is present. Adequate dosing should be used to ensure treatment success ie in adults, eg recommend 500mg vs 250mg The use of topical Fusidic acid in superficial infection is discouraged in order to preserve its usefulness in more serious systemic infection *For more information, see NHSSB Wound Care Formulary, 2004 and NHSSB Guidance on Use of Antimicrobials in Primary Care, 2003*

NHSSB Open Wound Observation Chart

Northern Health and Social Services Board

Open Wound Observation Chart

Name: . . . . . **Unit No:** . . . . . **Ward:**	**Referrals (where appropriate):** **Tissue Viability Nurse:** **Date:** ...../...../..... **Dietician:** **Date:** ...../...../..... **Other:** **Date:** ...../...../.....
Consultant / GP:	**Allergies:**
Type of Wound:	**Wound Site:**

Body Area Affected	**Date:**	.....	.....	.....
(Mark on diagram)     	**MAXIMUM SITE (CM or MM)**	Length . . . . . Depth . . . . . Width . . . . . Wound traced ☐ yes ☐ no Photograph ☐ yes ☐ no	Length . . . . . Depth . . . . . Width . . . . . Wound traced ☐ yes ☐ no Photograph ☐ yes ☐ no	Length . . . . . Depth . . . . . Width . . . . . Wound traced ☐ yes ☐ no Photograph ☐ yes ☐ no
	WOUND BED (state approx %)	☐ Necrosis (black) ☐ Slough (yellow) ☐ Granulation (red) ☐ Epithelialising (pink) Other.....	☐ Necrosis ☐ Slough ☐ Granulation ☐ Epithelialising Other.....	☐ Necrosis ☐ Slough ☐ Granulation ☐ Epithelialising Other.....
	SURROUNDING SKIN	☐ Healthy ☐ Blistered ☐ Dry ☐ Macerated ☐ Red & Hot	☐ Healthy ☐ Blistered ☐ Dry ☐ Macerated ☐ Red & Hot	☐ Healthy ☐ Blistered ☐ Dry ☐ Macerated ☐ Red & Hot
	EXUDATE (colour)	☐ Serous ☐ Serosanguinous ☐ Sanguinous ☐ Purulent	☐ Serous ☐ Serosanguinous ☐ Sanguinous ☐ Purulent	☐ Serous ☐ Serosanguinous ☐ Sanguinous ☐ Purulent
	EXUDATE (amount)	☐ Dry ☐ Low ☐ Moderate ☐ High	☐ Dry ☐ Low ☐ Moderate ☐ High	☐ Dry ☐ Low ☐ Moderate ☐ High
	ODOUR	☐ None ☐ Only present when the dressing is removed ☐ Fills the room	☐ None ☐ Only present when the dressing is removed ☐ Fills the room	☐ None ☐ Only present when the dressing is removed ☐ Fills the room
	WOUND PAIN (frequency)	☐ None ☐ Only at dressing change ☐ Intermittent ☐ Continuous Analgesic Dose	☐ None ☐ Only at dressing change ☐ Intermittent ☐ Continuous Analgesic Dose	☐ None ☐ Only at dressing change ☐ Intermittent ☐ Continuous Analgesic Dose
	Bandage Condition	☐ Intact ☐ Disturbed ☐ Strikethrough	☐ Intact ☐ Disturbed ☐ Strikethrough	☐ Intact ☐ Disturbed ☐ Strikethrough
	Signature			

FOR FURTHER INFORMATION REFER TO CREST GUIDELINES FOR WOUND MANAGEMENT

DATE			
INFECTION No signs of infection	☐	☐	☐

COMPLETE THE FOLLOWING SECTION ONLY IF CLINICAL INFECTION IS SUSPECTED

A. LOCAL INFECTION Pus	☐	☐	☐
Exudate increasing	☐	☐	☐
B. SPREADING INFECTION Pyrexia >38C	☐	☐	☐
Heat, new or increasing	☐	☐	☐
Redness, new or increasing	☐	☐	☐
Swelling, new or increasing	☐	☐	☐
Tenderness or pain, new or increasing	☐	☐	☐

Systemic Antibiotics and Swabs / Blood Cultures for bacteriology ONLY indicated if SPREADING INFECTION (FOUR or more from section B are present*)
***Immunocompromised patients eg patients with diabetes any two or more from section A and or B**
Refer to Trust Guidance

THE FOLLOWING SECTION SHOULD BE COMPLETED FOR THESE PATIENTS ONLY			
Swab taken (date)	.....	.....	.....
Blood culture taken (date)	.....	.....	.....
Antibiotic	.....	.....	.....
Route of admin.	.....	.....	.....
Date commenced	.....	.....	.....
Stop date	.....	.....	.....
Signature			

WOUND TREATMENT CHART

Date	Recommended Dressing/Bandages	Frequency of Changes	Stop Date	Rationale for Treatment	Signature

Form revised Dec 2004

Guidelines for use of NHSSB open wound observation chart

The NHSSB Open Wound Observation Chart has been designed to assist healthcare professionals in the holistic assessment of patients with open wounds.
Accurate assessment and documentation will improve communication between professionals ensuring continuity of care and the early identification of progress or deterioration in wound healing.

WOUND EVALUATION
This section should be completed on *initial assessment* of the wound and thereafter only when wound is being re-evaluated i.e. *weekly, monthly* or when there is a *change in dressing regime.*

WOUND MEASUREMENT
- Wounds should be measured using either linear (ruler-based) measurements, transparency tracings or photography
- Remember length should always be measured head to toe
- Record maximum length and width of the wound
- Depth can be measured using two sterile probes/spatulas

WOUND BED
Tissue type described by colour provides the rationale behind the main treatment objective.

COLOUR	TISSUE TYPE	TREATMENT OBJECTIVE
Black	Necrotic tissue	Debride
Yellow	Slough	Debride and absorb exudate
Red	Granulation	Protect and maintain moist environment
Pink	Epithelialising	Protect

Exposed tendon, bone or muscle may also be present and should be documented. Exposed tendon must be kept moist at all times to prevent it snapping and subsequent loss of function.

Type of tissue on the wound bed should be quantified using percentages eg. 25% (1/4) Yellow/slough + 75% (3/4) red/granulation.

SURROUNDING SKIN
Condition of the surrounding skin can indicate underlying disease and the effectiveness of current treatment regimes. e.g. maceration - requires a dressing with greater absorbency.

EXUDATE
Exudate is described by **colour:**

- Serous; clear fluid with apparent visual absence of blood, pus or other debris
- Serosanguineous; blood mixed with obvious quantities of clear fluid
- Sanguineous; bloody, appearing to be entirely composed of blood
- Purulent; pus like in appearance, cloudy, yellow and viscous

Exudate is also described by the **amount:**

- **Dry** - Wound does not produce exudate
- **Low** - Wound bed is moist
- **Moderate** - Surrounding skin is wet and there is exudate in the wound bed
- **High** - Surrounding skin is saturated

WOUND ODOUR
This can be caused by infection, necrotic tissue, or the use of certain dressing materials. The cause should be established and treated.

The following description should be used -

- None
- Only present when dressing is removed - dressing may be the cause of the odour.
- Fills the room - often indicates presence of anaerobic bacteria.

WOUND PAIN
Location, frequency and severity of pain can help determine the presence of underlying disease, effectiveness of analgesia and efficacy of local wound care i.e. dressings/cleansing methods.

- None; no pain experienced
- Only at dressing change; may indicate inappropriate choice of dressing or method of cleansing
- Intermittent; pain may be influenced by position e.g. arterial ulceration of lower leg
- Continuous; dressing regime and analgesia should be reviewed

Use local pain management policies e.g. visual/verbal rating scales to identify patients perception of pain. Record analgesic and dose.

BANDAGE CONDITION

- Intact – Has maintained its original purpose
- Disturbed – May indicate interfered with or has slipped of own accord
- Strikethrough – Exudate appears on the outer surface of the bandage

CLINICAL INFECTION
If clinical infection is suspected assess the wound using the criteria listed on the chart.
Wound swabs and Blood Cultures are ONLY indicated if spreading is present

Information required on Laboratory Request Form

Be specific:
- Site and nature of wound
- Condition of wound / signs of infection
- Antibiotic therapy - recent/current
- Date and time of collection
- Patient identification and location data
- If patient has diabetes, this should be clearly noted

Types of Wounds

Management of Excoriated Skin

Rationale: To prevent damage to the skin by scratching and if excoriation has already occurred, minimise further damage by reducing pruritus

ACTION	RATIONALE
If pruritus present, investigate underlying cause	May be caused by systemic disease eg drug hypersensitivity, obstructive jaundice, endocrine disease, malignant disease as well as by skin disease eg psoriasis, eczema
Palliative care patient with pruritus - refer to BNF for further advice	Guidance on appropriate intervention
Dry skin present apply emollients liberally and at least twice a day	Soothing to patient and alleviates dryness/irritation. *See Section on Venous eczema -Emollients*
Consider choice of emollient	GP Practice or Trust may have a formulary recommending particular products first line. Preparations containing Calamine are often ineffective. *See Section on Venous eczema- emollients*
Advise patient not to scratch thereby preventing further excoriation/secondary infection	Increases patient's understanding of the condition and so aids compliance with treatment
Topical treatment not effective consider sedating antihistamine orally eg Chlorphenamine	Sedating antihistamines appear to give better symptom relief

Management of Dry Skin and Venous Eczema

For more information on compression, refer to Bandaging section, NHSSB Wound Care Formulary

Rationale: Ensure standardised and appropriate management of venous eczema

ACTION	RATIONALE
(1) Compression	
Treat with sustained compression, either with stockings or bandages applied regularly and indefinitely	Reduces venous hypertension
(2) Emollients	
Emollients or barrier preparations are used for mild eczema	Soothing to patient and alleviate dryness and irritation
Apply emollients frequently even after improvement occurs	Effects are short-lived
Prescribe adequate quantities (see table on next page)	Frequent application reduces need for topical steroids
Avoid preparations containing topical antibiotics	No proven benefit and may cause sensitisation
Caution with excipients eg preservatives	Products with excipients may cause sensitisation. Refer to BNF Chapter 13.2 for information on products
Ointments are generally preferable to creams	More effective for chronic dry eczema and are less sensitising than creams as contain less preservatives
(3) Topical steroids	
More severe cases or unresponsive try mild to moderate topical steroids (BNF Chapter 13.4) *Mild* eg Hydrocortisone 1% *Moderately potent* eg Clobetasone butyrate 0.1%	Anti-inflammatory effect. These strengths unlike the more potent ones, are also rarely associated with side-effects. Higher potency steroids can be absorbed to cause local and systemic effects

ACTION	RATIONALE
Ointments are preferable to creams	More effective for chronic dry eczema and are less sensitising than creams as contain less preservatives
Apply once or twice a day	To ensure appropriate dose of steroid
Use emollient in between applications of steroid	To avoid skin drying out
Review strength of steroid applied. If potent steroids have been used, gradual withdrawal may be required	To avoid relapse of eczema
Topical treatment not effective consider oral sedating antihistamine eg Chlorphenamine	Sedating antihistamines appear to give better symptom relief

SUITABLE QUANTITIES OF EMOLLIENTS

The following are suitable for an adult for twice daily application for one week. They do NOT apply to corticosteroid preparations - for suitable quantities of corticosteroids refer to BNF, Chapter 13.4.

	Creams/Ointments	Lotions
Face	15 -30g	100ml
Both hands	25-50g	200ml
Scalp	50-100g	200ml
Both arms or both legs	100-200g	200ml
Trunk	400g	500ml
Groin and genitalia	15-25g	100ml

EMOLLIENT PREPARATIONS

- Excipients can cause sensitisation. Products with NO excipients are marked *

Preparation	Pack Size(s)	Directions
Aqueous Cream	100, 500g	Apply frequently
Emulsifying Ointment	100, 500g	Apply frequently *(also suitable as soap substitute)*
E45 cream®	50, 125, 500g	Apply frequently
Liquid and soft white paraffin Ointment NPF* (50:50 mixture)	Various including 500g	Apply frequently
Diprobase® *	Ointment 50g	Apply frequently
Diprobase®	Cream 50, 500g dispenser	Apply frequently
Unguentum M®	Cream, 50, 100, 500g 200ml dispenser	Apply frequently

Bath/Shower Emollients		
Oilatum Bath Emollient®	250, 500ml	Add 1-3 capfuls to bath
Oilatum Gel®	125g	Apply to wet skin, massage in, then rinse and dry
Balneum®	200, 500ml	Add 1-3 capfuls to bath

EMOLLIENT PREPARATIONS CONTAINING UREA

- Urea is a hydrating agent used in dry skin and scaling conditions. It may be useful in elderly patients.

Aquadrate® *	Cream 30, 100g	Apply TID, massage a thin layer into area
Calmurid® *	Cream 100,500g (dispenser)	Apply TID, massage into area

Management of the Diabetic Foot

Why is the diabetic foot at risk?

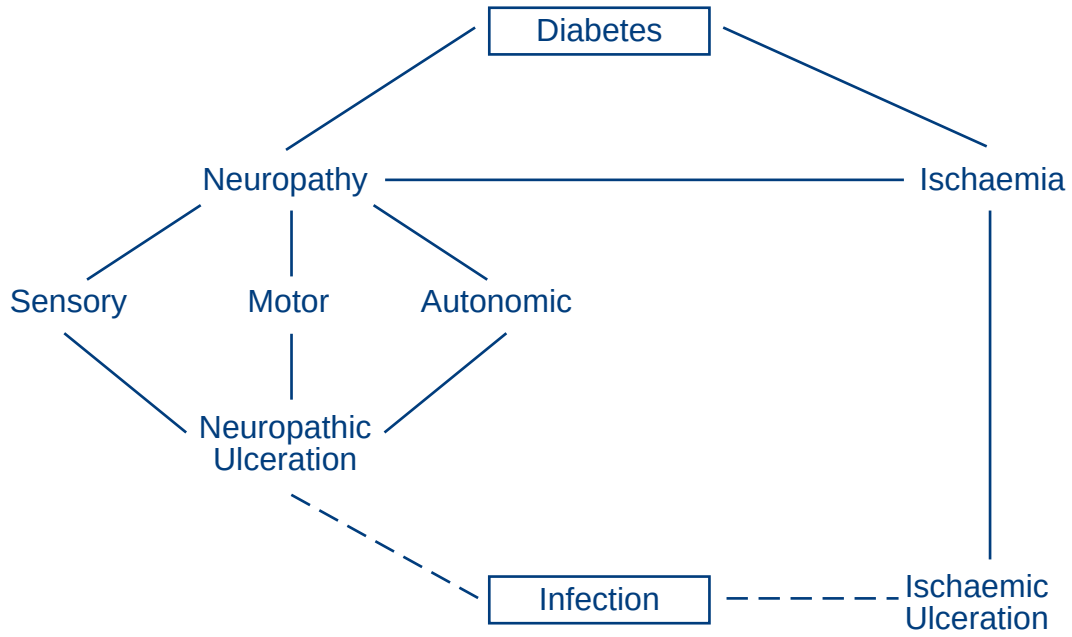
A combination of peripheral neuropathy and vascular insufficiency predisposes the diabetic foot to physical trauma and ulceration. Subsequent infection and the possible onset of gangrene can lead to amputation. As a result diabetic foot problems are of great clinical and economic importance.

There are many factors both extrinsic and intrinsic which place the diabetic foot “at risk”, and contribute to the associated problems of impaired wound healing.

Risk factors for foot ulceration

Extrinsic Factors	Intrinsic Factors
Smoking	Neurpoathy
Trauma	Peripheral Vascular Disease
Living alone	Susceptibility to Infection
Little or poor knowledge of diabetes	Limited joint mobility
Little or poor knowledge of risk factors for foot problems	Structural Deformity
	Nephropathy
	Age
	Sex
	Duration of diabetes
	Retinopathy
	History of ulceration

The natural history of diabetic foot disease dictates the normal foot progressing to a foot and limb that become high risk, however these risk factors may not cause symptoms and thus patients do not report problems.



(Edmonds et al 2004)

The effects of diabetes on normal wound healing are profound. The impaired healing may be manifest as *either delayed wound healing ± infection or chronic non-healing wounds* (typically in the lower limbs of affected individuals).

Assessment
Assesment of the diabetic foot should include checking the:

- Nails
- Skin for callous, ulceration or other signs of an infection eg athletes foot
- Patient's footwear and hosiery

Specialist assessment by the podiatrist will include those for neuropathy (Pressures and Vibratory perception thresholds) and vascular status (Ankle Brachial Pressure Indices)

Comparison of symptoms of neuropathic and neuroischaemic pain

	Claudication	Ischaemic Rest Pain	Symptomatic Neuropathy
Sensation described	Cramp	SEVERE Cramp/ache/burning	Burning/tingling/pins and needles
Site	Lower limb- buttocks to toes	Often affects the forefoot	Feet (usually both)
When experienced?	On walking (note distance)	Anytime, often worse in bed	May be constant, often worse in bed
How relieved?	Rest	Eased by hanging legs out of bed	Standing / walking around

NB: It is often difficult to decide if ischaemia or neuropathy causes your patient's symptoms, ask for a second opinion if you are unsure.

Principles of management of the diabetic foot

Diabetic foot care is multidisciplinary and involves:

- metabolic control
- education
- dressing selection
- vascular intervention
- debridement
- management of infection /cellulitis
- reduction of pressure
- footwear

Dressing Selection

Dressing selection is secondary to sharp debridement and pressure relief, and should be based on the stage of the wound and what the clinician hopes to achieve with its use.

What should, however, be remembered, is that that the status can change very quickly especially if infection control has not been appropriately addressed. The wound needs regular inspection and assessment; therefore, dressings designed to be left in situ for more than 5 days e.g hydrocolloids are not usually appropriate for the management of diabetic foot wounds.

Management of Infection

The neuropathic ulcer is usually painless. Pain associated with neuropathic ulceration may be the first symptom of infection.

In patients with diabetes the inflammatory response is impaired or at best delayed. All swabs taken from diabetic foot ulcers should be deep ulcer swabs and information sent to the laboratory should include confirmation that the patient has diabetes. If the swab shows a positive culture then the patient should be treated with appropriate antibiotics, as patients with diabetic ulcers and a positive swab develop clinical infection.

All patients with diabetes should be referred to the podiatrist for assessment.
Podiatrists are skilled in sharp debridement so all diabetic foot wounds should also be referred to podiatry for this and assessment for pressure relief/footwear.

Management of Pressure Ulceration

Rationale: Ensure standardised and appropriate management of pressure ulcers in accordance with relevant Trust policy

ACTION	RATIONALE
Assess patient's level of risk using locally agreed risk assessment tool	Allows early identification of risk and guides intervention required
Identify intrinsic and extrinsic risk factors	Guides referrals to other members of the multidisciplinary team
Carry out nutritional screening for all patients at risk of pressure damage or presenting with an existing ulcer	Facilitate early identification of patients requiring specialist input from the dietician
Reassess risk score when patient's condition changes	To ensure optimal intervention at all times
Ensure patient placed on appropriate pressure support surface if indicated	To minimise pressure, prevent compression and distortion of the tissues
Upgrade/downgrade pressure support surface as patient's risk status improves/deteriorates	Ensure allocation of equipment appropriate to meet clinical need
Maintain head of bed at lowest degree of elevation, consistent with medical condition	To minimise shearing forces
Use correct moving and handling techniques and equipment to reposition patient	To reduce friction
If repositioning of patient impossible to carry out safely, nurse patient on a profiling electric bedframe	Prevent unnecessary pressure damage to patient and injury to staff during repositioning procedure
Calculate and implement an individualised repositioning schedule	Ensure that the repositioning schedule meets the needs of each patient concerned
Systematically inspect skin and pressure points daily/twice daily if indicated	Allows early identification of pressure damage facilitating preventative measures

ACTION	RATIONALE
Manage incontinent episodes with appropriate products promptly	Reduce maceration of skin and friction of tissues
Grade any pressure damage using the NPUAP grading tool	Standardise grading of pressure ulcers throughout the clinical area
Assess pressure ulcer damage and record wound condition/progress on open wound observation chart	Provide documentary evidence of wound progress and treatment
Choose appropriate dressing to manage wound bed tissue and presenting symptoms	Ensures optimal treatment regimen to meet treatment objectives
Redress wound as indicated clinically using a structured and systematic approach	Prevent unnecessary dressing changes, and ensure an optimal wound management programme is followed

Management of Venous Ulceration

For more information on recommended products, correct application and Guide to Compression Hosiery refer to Bandaging section, NHSSB Wound Care Formulary

Rationale: Ensure standardised and appropriate management of venous ulceration

ACTION	RATIONALE
NOTE: Doppler assessment is advisable to ensure appropriate management	
Immerse leg in basin of warm tap water and cleanse gently with disposable cloth	Cleanse wound and skin thoroughly and prevent cooling down of wound bed
Do not keep leg immersed in water for longer than 5 minutes	Prevents maceration
Remove hard/dry skin scales from peri wound area using sterile plastic forceps	Prevent infection and pressure necrosis due to an increase of pressure under the scales when bandage applied
Dry leg thoroughly but gently. Pay particular attention to between the toes	Prevent tissue maceration
Moisturise whole lower leg eg. with a mix of 50% soft white paraffin 50% liquid paraffin, taking care to avoid wound	Moisturise skin prior to application of bandage
Apply cling film to wound if dressing not being carried out immediately	Keep wound bed moist promoting cellular activity within the wound
Choose wound dressing according to the wound bed and symptoms	Promote moist wound healing environment
Measure ankle circumference and document in patient's notes	Determine suitable bandage regimen
Apply required amount of 10cm width wool bandage, base of toes to just below tibial tuberosity	Shape leg, protect bony prominences, reduce risk of skin damage from the compression bandage
Apply recommended compression bandage from base of toes to just below the tibial tuberosity	Provide adequate levels of compression for that patient
Urgent referral to consultant Vascular surgeon should be sought if limb threatened	Ensure specialist management and accurate assessment of limb salvaging potential

Management of Arterial Ulceration

Rationale: Promote appropriate and safe management and ensure early detection of deterioration of the ulcer or the compromised limb

ACTION	RATIONALE
NOTE: Doppler assessment is advisable to ensure appropriate management	
Examine wound bed for presence of devitalised tissue	Acts as a focus for infection and demonstrates deterioration of wound
Identify, report and record clinical signs of infection	Early detection and management will help prevent severe infection
Record on NHSSB open wound observation chart	Identify issues that need addressed, facilitating formulation of suitable wound management programme
Administer prescribed analgesia to the patient prior to commencing dressing procedure	Ensure dressing renewal is not traumatic and painful for the patient
Irrigate wound with normal saline if cleansing clinically indicated	Remove unwanted debris, Prevent trauma to new tissue and peri wound area by vigorous cleansing
Protect peri wound area with suitable barrier product eg: Cavilon spray®, cream or applicators	Prevent maceration and possible wound extension due to peri wound breakdown
Dress wound daily until appropriate wound management programme advised	Ensure early detection of infection or deterioration, prompting urgent referral to the appropriate specialist
Retain dressing with a soft retention bandage	Use of tapes/adhesive dressings may cause damage to friable intact skin in the arterially compromised limb
Dry necrosis:choose dressing to keep wound dry, facilitate painless removal, reduce bacterial load eg: Povidone – iodine dressing	Prevent increasing wound dimensions until specialist advice received
If tendon exposed keep moist eg. hydrogel	To prevent snapping and loss of function
Request assessment by TVN if wound is classified as a pressure ulcer and advice needed	Recommend a pressure relieving programme to prevent further pressure damage and appropriate wound management strategy
Request assessment by podiatrist if patient has a foot wound and has diabetes, renal disorder, rheumatoid arthritis	Provide specialist management and quality of care to the patient concerned
Urgent referral to consultant Vascular surgeon should be sought if limb threatened	Ensure specialist management and accurate assessment of limb salvaging potential

Management of fungating wounds

Rationale: Minimise pain and trauma at dressing change, prevent maceration of peri wound area and control odour. Maintain patient dignity with awareness of body image issues.

Always liase with the Palliative Care Team for advice on pain control

ACTION	RATIONALE
Administer prescribed analgesia 20 minutes before commencing dressing if necessary	To reduce distress and pain at dressing change
Do not attempt to measure or probe fungating wounds	Avoid unnecessary discomfort/pain to the patient and trauma to the wound bed
Choose wound dressings with non adhesive properties, high absorption capacity and conformability	Facilitate easy removal, prevent leakage of exudate, reducing risk of maceration and promote patient comfort
Irrigation is not always needed. If required, gently irrigate with normal saline (room temperature)	Remove debris from wound bed without causing trauma or pain
Irrigate using a syringe 10ml volume or greater, with gentle pressure	Smaller syringes cause too great a pressure
Protect peri wound area with suitable barrier product eg: Cavilon®	To prevent wound extension due to breakdown of peri wound skin
Apply non-adherent primary wound contact layer to the wound bed eg. Mepitel®. Do not allow wound to dry out.	Prevent adhesion to the wound bed on removal. Drying causes increased pain and bleeding.
Apply alginate as a secondary dressing if minor bleeding is evident from the wound. If there is active bleeding, monitor full blood picture.	Control minor bleeding and avoid adherence to the wound bed.
Apply haemostatic sponges if fast active bleeding evident	Induces rapid haemostasis and are biodegradable (absorbed into the wound)
Apply charcoal dressings if wound is malodorous under a sealed dressing system	Absorb volatile malodorous chemicals but will leak if dressing is not sealed
Apply Metronidazole on a daily basis. If wound is highly exuding may be rendered ineffective. Consider systemic Metronidazole if patient can tolerate it	To treat anaerobic bacteria which are a common cause of odour
Occlusive dressings should only be used if surrounding skin is healthy	Create airtight seal which contains odour and can reduce exudate production
Use dark towels/sheets where bleeding is suspected	To reduce patient anxiety
Reduce frequency of dressing changes to a minimum	To reduce pain and promote patient comfort

Gentle debridement ie. with hydrogel may be possible	Removes necrotic tissue
Pruritis can be a problem. Topical steroid cream or Cavilon® may give relief. If using Cavilon®, ensure skin as dry as possible before application NB: Antihistamines are not effective	Increase patient comfort
If patient is in pain, topical analgesia may be an option on specialist advice only	To reduce pain and distress
Highly exuding wounds – consider use of wound drainage bags	Manages exudate and reduces odour

Sterile Dressing Procedure

Rationale: Prevent micro-organisms coming into contact with the wound from nurse or outside environment

ACTION	RATIONALE
Explain and discuss procedure	Ensure understanding/consent
Wash hands and don plastic apron	Ensure sterility of procedure
Clean trolley with alcohol wipes	Provide clean working surface
Place equipment on bottom shelf	Maintain clean top shelf
Loosen dressing tape	Facilitate removal
Check dressing pack undamaged	Ensure sterility of products
Open dressing pack, use corners	Minimise potential contamination
Tip other products on sterile field	Prep equipment
Wash hands	Reduce contamination from pack
Place hand in disposable bag	Maintain sterility of pack
Arrange products using bag	Maintain sterility of products
Remove used dressing with bag	Minimise risk of contamination
Invert bag and stick to trolley	Minimise risk of contamination
Swab edge of sachet	Prevent contamination of lotion
Pour liquid into gallipot	Maintain sterility of lotion
Wash hands	Reduce risk of infection
Don sterile gloves	Maintain sterility
Irrigate wound if needed	Remove slough, debris from
Apply barrier product peri wound if needed	Prevent maceration
Place appropriate primary dressing on wound	Act as wound contact layer
Place secondary dressing	Protect, secure primary dressing
Remove plastic apron & gloves, dispose of same	Prevent cross contamination
Dispose of waste, wash hands	Refer to Trust policy, reduce cross infection

Collection of a wound swab

Rationale: To facilitate adequate specimen collection and ensure informative results.

For swabbing criteria refer to NHSSB Open Wound Observation Chart

ACTION	RATIONALE
Complete the laboratory request form & label swab tubes Red/Blue	Correctly identify patient, ensure correct information sent to labs
Wash/dry hands thoroughly, wear plastic apron and gloves	Prevent cross infection
Irrigate wound with normal saline at room temperature	Remove surface contamination
If wound dry moisten swab with normal saline/sterile water (room temperature)	Facilitate adhesion of microorganisms to the swab
Use a zigzag motion and rotate the swab vigorously over the wound	Ensure effective specimen collection
If infection suspected in more than one area swab separately	Prevent cross contamination and ensure accurate results
Place the swab directly into the sample tube	Reduce the risk of airborne infection
Complete Laboratory request form. Be specific: • Site and nature of wound • Condition of wound/signs of infection • Antibiotic therapy recurrent/current/imminent • Date and time of collection • Patient information and location data • State if patient has diabetes	Full information allows microbiology to make the most appropriate recommendation
Remove plastic apron and gloves, dispose of same and wash hands	Prevent cross infection
Send specimen to the laboratory as soon as possible	Facilitate quick analysis and dissemination of results
Record swab collection on open wound observation chart	Ensure monitoring of wound infection and management

Guidelines for patients admitted with compression bandages in place

Rationale: Ensure effective and appropriate management of patients admitted to hospital with venous ulceration

For information on products used in Primary care refer to NHSSB Wound Care Formulary, Bandaging section

ACTION	RATIONALE
Ascertain history of leg ulceration from patient/family	To help with management
Contact the relevant health professional who applied the bandage, or person involved with management in community, record in medical notes	Confirm aetiology of ulcer, ABPI, treatment regimen, prevent unnecessary investigations
Continue with current regimen if effective and medical condition allows	Prevent further breakdown of venous ulceration
Order required amount of the necessary items or formulary equivalents from pharmacy	Ensures that items are available on the ward when the dressing needs renewed
Follow procedure elsewhere in NHSSB Wound Management Manual for management of venous ulceration	Ensure effective and standardised practice Trust wide
Do not apply compression bandages unless competent in doing so	Incorrect bandaging can cause further damage to the limb
Contact Tissue Viability Nurse for advice and training on compression bandage application if needed	Ensure safe and appropriate use of compression bandaging
If current regimen is ineffective and/or inappropriate refer to the appropriate specialist for assessment and advice	To ensure accurate diagnosis and management
Complete appropriate referral form and open wound observation chart	Identify issues that need to be addressed and ensure an effective and structured consultation is achieved

Multi-layer Compression Bandaging: Additional Information for Community

A number of products are marketed as “kits” for four layer compression bandaging used in treating venous leg ulcers. Previously prescribers had to list each bandage separately on the prescription as shown, figure 1. From July 03, two of these kits, Ultra Four® and Profore® may now be prescribed as “kits”. Other bandaging systems are still available but must be prescribed by listing individual components.

A two-layer kit (Proguide 2 Layer System® (£9.07-£10.06*) is also available on Drug Tariff. This is comparable with 4 layer bandaging system and **should not be confused** with the more commonly used “short stretch” (2 layer method) described later in this section.

Which should I prescribe - “kit” or individually?
Whilst prescribing a “kit” is undoubtedly convenient, prescribers should consider the following before prescribing:

- There is a wide cost variation between those commercially available (see table)
- Only prescribe a “kit” where all individual layers of a “kit” will be used - considerable waste occurs with discarded layers
- Many practitioners prefer to select their 4 layer system from different manufacturers, see *prescription figure 1.*
- A wool padding layer to protect bony prominences should be used under all compression bandage types

Name of 4 layer “Kit”	Prescribe as	Total Cost (based on 18-25cm ankle circum)*
Hospifour®	Individual layers **or** kit	£4.98
K-Four®	Individual layers	£6.40
Ultra-four®	Individual layers **or** kit	£6.16
System 4®	Individual layers	£7.30 - £8.01
Profore®	Individual layers **or** kit	£8.77

* Prices NI Drug Tariff Dec 2004

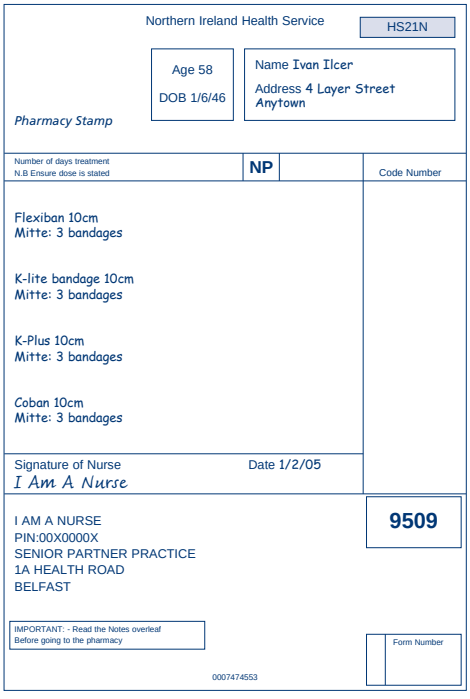

Northern Ireland Health Service
HS21N
Age 58
DOB 1/6/46
Name Ivan Ilcer
Address 4 Layer Street
Anytown
Pharmacy Stamp
Number of days treatment
N.B Ensure dose is stated
NP
Code Number
Flexiban 10cm
Mitte: 3 bandages
K-lite bandage 10cm
Mitte: 3 bandages
K-Plus 10cm
Mitte: 3 bandages
Coban 10cm
Mitte: 3 bandages
Signature of Nurse
I Am A Nurse
Date 1/2/05
I AM A NURSE
PIN:00X0000X
SENIOR PARTNER PRACTICE
1A HEALTH ROAD
BELFAST
9509
IMPORTANT: - Read the Notes overleaf
Before going to the pharmacy
Form Number
0007474553

Fig 1: Sample script showing prescribing 4-layer bandaging in community, using cost-effective products recommended in NHSSB Woundcare Formulary

Two-Layer Bandaging
This is becoming more common especially to increase patient compliance/acceptability where four layer cannot be tolerated.

Remember:

- All bandages inappropriately or inexpertly applied have the potential to cause damage
- It is essential that a holistic assessment, including **ABPI** (ankle brachial pressure index) is determined before a decision is made to use compression bandaging
- Seek advice from local Tissue Viability Nurse Specialist

Bandaging Type	Indication
"Short stretch" ie. contact layer + wool + Actico®	Patients with evidence of venous disease and an ABPI between 0.75 - 1.2 Gives low resting pressure Maximum pressure with activity
Proguide® System (NB: comparable to 4 layer)	Solely venous ulcers with ABPI >0.8 Maintains optimal sub-bandage pressure for 7 days

For full guidance on compression bandaging and preferred products see NHSSB Wound Care Formulary

Wound Dressing Evaluation Form and Notes

DRESSINGS EVALUATION FORM

Patient's Name _____ Address _____ _____ _____ Hospital No _____ Date of Birth _____ Male / Female	Dressing name _____ Type, eg alginate, hydrocolloid _____ _____ Date _____ Name of person carrying out evaluation _____

THE WOUND

Type (A)
- Pressure sore ☐
- Surgical wound ☐
- Leg ulcer - venous ☐
- arterial ☐
- Diabetic foot ulcer ☐
- Other (state) _____

Type (B)
- Cavity ☐
- Flat ☐
- Sinus ☐

Location _____

Size width _____ cms length _____ cms
depth _____ cms

Duration of wound _____ days

WOUND ASSESSMENT

Black	(Necrotic)	☐
Yellow/brown	(Sloughy)	☐
Red	(Granulating)	☐
Pink	(Epithelialising)	☐
Green	(Infected)	☐
Odorous	Yes ☐	No ☐

LEVEL OF EXUDATE

High	☐
Medium	☐
Low	☐

Condition of surrounding skin

_____

_____

How long used for (no of days) _____

Reason for change

_____

_____

Secondary dressing Y / N

State which dressing _____

Comments

_____

_____

_____

_____

PERFORMANCE OF DRESSING BEING EVALUATED COMPARED WITH PREVIOUSLY USED DRESSING

	Excellent	Good	Fair	Poor	Not Acceptable
Ease of application	☐	☐	☐	☐	☐
Ease of removal	☐	☐	☐	☐	☐
Non-adherence to the wound	☐	☐	☐	☐	☐
Ability to manage exudate	☐	☐	☐	☐	☐
Ability to manage odour	☐	☐	☐	☐	☐
Conformability of dressing to wound	☐	☐	☐	☐	☐
Ability to remain in position	☐	☐	☐	☐	☐
Patient comfort	☐	☐	☐	☐	☐

Other comments

PERFORMANCE OF DRESSING BEING EVALUATED COMPARED WITH PREVIOUSLY USED DRESSING

	Excellent	Good	Fair	Poor	Not Acceptable
Ease of application	☐	☐	☐	☐	☐
Ease of removal	☐	☐	☐	☐	☐
Non-adherence to the wound	☐	☐	☐	☐	☐
Ability to manage exudate	☐	☐	☐	☐	☐
Ability to manage odour	☐	☐	☐	☐	☐
Conformability of dressing to wound	☐	☐	☐	☐	☐
Ability to remain in position	☐	☐	☐	☐	☐
Patient comfort	☐	☐	☐	☐	☐

Other comments

PERFORMANCE OF DRESSING BEING EVALUATED COMPARED WITH PREVIOUSLY USED DRESSING

	Excellent	Good	Fair	Poor	Not Acceptable
Ease of application	☐	☐	☐	☐	☐
Ease of removal	☐	☐	☐	☐	☐
Non-adherence to the wound	☐	☐	☐	☐	☐
Ability to manage exudate	☐	☐	☐	☐	☐
Ability to manage odour	☐	☐	☐	☐	☐
Conformability of dressing to wound	☐	☐	☐	☐	☐
Ability to remain in position	☐	☐	☐	☐	☐
Patient comfort	☐	☐	☐	☐	☐

Other comments

Pharmaceutical Wound Dressing Samples

Drug company representatives may distribute samples of wound management products, especially when new products come on the market. It is important that use of these products is managed effectively to ensure that liability for the product is clear and that best use is made of resources.

In hospital, there are clear policies where any samples must be left in pharmacy rather than given directly to individual wards. In primary care, individual practices may have their own policy about use of new products and it is important that this is discussed within the practice.

Use of resources

Product samples may provide an opportunity for nursing staff to try out a new dressing or a product that is not listed in the formulary. However, it is important that samples are used correctly and in a coordinated way to ensure that all members of the team benefit from the experience gained in their use and that use of samples does not inadvertently lead to increased costs.

It is recommended that one member of the team is responsible for co-ordinating use of samples and receiving feedback on their use. If a product is shown to provide a significant advantage over other products in the formulary, the co-ordinator should make a request to the formulary group for that product to be considered for addition.

Product Liability

Most dressings are regulated by the Medical Devices Agency. The Medical Devices Agency requires that all medical devices placed on the market (including free samples) must conform to their safety requirements. The ‘CE’ mark is used to indicate that these regulations have been adhered to.

- If a product contains a ‘CE’ mark, responsibility for safety remains with the manufacturer provided the product can be traced.
- If a product does not contain a ‘CE’ mark, liability for the product may lie with the professional who supplies it.

Recommendations

1. Check the sample to ensure that the packaging is intact, the product has been stored correctly, and that it has not been labelled to say that it is for demonstration purposes only.
2. Only use samples marked with a ‘CE’ mark
3. Ensure the product has appropriate instructions for use if relevant.
4. Record the batch number and expiry date in the patient’s notes.
5. Complete dressings evaluation form and return to Tissue Viability Nurse in respective Trust.

Faulty Dressings

Any dressing, new or established which is faulty, should be reported via the appropriate Trust procedure.

Adverse Reactions

There is no mechanism for reporting adverse reactions to dressings, as the “yellow card” system serves only to report adverse events associated with medicine use.

Information on adverse reactions to dressings in either primary or secondary care should also be reported to either of the pharmacists below so that this can be collated for the Northern Health and Social Services Board Area:

Dianne Gill, Principal Pharmacist, Antrim Area Hospital, 45 Bush Road, Antrim BT41 2RL or Stephanie Tohill, Pharmacist, Causeway Hospital, 4 Newbridge Road, Coleraine BT52 1TP

Northern Board Guidelines for the

Management of Black Heels

A Multidisciplinary Approach

Northern Ireland Guidelines for the

Management of Black Heels

These guidelines have been developed by a subgroup of the Wound Management Group. They should be read in conjunction with the individual Trust Protocol for the Prevention and Management of Pressure Sores.

Contents

Assessment

Definition:

An area of “black” necrotic eschar or “shell” on the heel.

All patients will be assessed as per individual Trust Protocol for the Prevention and Management of Pressure Sores.

Black Heels should be treated as Grade 4 pressure ulcers.

Black heels should be uniformly described to facilitate communication amongst staff and to accurately monitor the progress or deterioration of the lesion. To ensure this, the clinician should describe the location and history of the wound, which should be accurately measured and the type/s of tissue present observed.
All information should be recorded on the Open Wound Observation Chart.

An Ankle Brachial Pressure Indices (ABPI) should be preformed on all patients with black heels. This should be seen as ‘gold standard’ practice.

Management

1) Relief of Pressure

See individual Trust Protocol for the Prevention and Management of Pressure Sores.

2) Debridement

Heel wounds, which have a dry eschar and no oedema, erythema fluctulance ('Sponginess') or drainage, do not require aggressive intervention at this time but continuous assessment is essential as the management plan may change. If there is oedema, erythema, fluctulance or drainage, then the eschar should be removed, as this necrotic material will provide an optimal environment for bacterial growth.

There are several methods of wound debridement available. The wound may appear larger after debridement. The clinician should select the method which is most suitable to the patient's needs and their own scope of professional practice.

3) Sharp Debridement

Sharp debridement is the method for removing thick adherent eschar and devitalised tissue. When there are signs of advancing cellulitis or sepsis, rapid debridement is imperative and should be carried out by an experienced practitioner. Those who perform sharp debridement should have the necessary clinical skills to do so and the skills should be within the practitioner's scope of practice.

4) Mechanical Debridement

This method includes hydrogels and larvae (refer to NHSSB Wound Management Manual / CREST Guidelines for Wound Management 1998).

5) Infection

The guidelines as specified on the Open Wound Observation Chart should be adhered to with regard to which wounds should be swabbed and when. All black heels will be colonised with bacteria but are not necessarily clinically infected. If bone is exposed or can be probed then the patient should be managed with antibiotic therapy for osteomyelitis and x-rayed.

6) Dressing Selection

Dressing choice will depend upon:

- The type and condition of the underlying tissue.
- The level of exudate.
- Odour.
- Condition of the surrounding skin.
- Depth of wound.

7) Vascular Referral

All patients with diabetes and/or chronic renal failure should be referred to vascular surgery.
All patients with an ABPI ranging between <0.7 and >1.3 should also be referred to this service.

N.B.

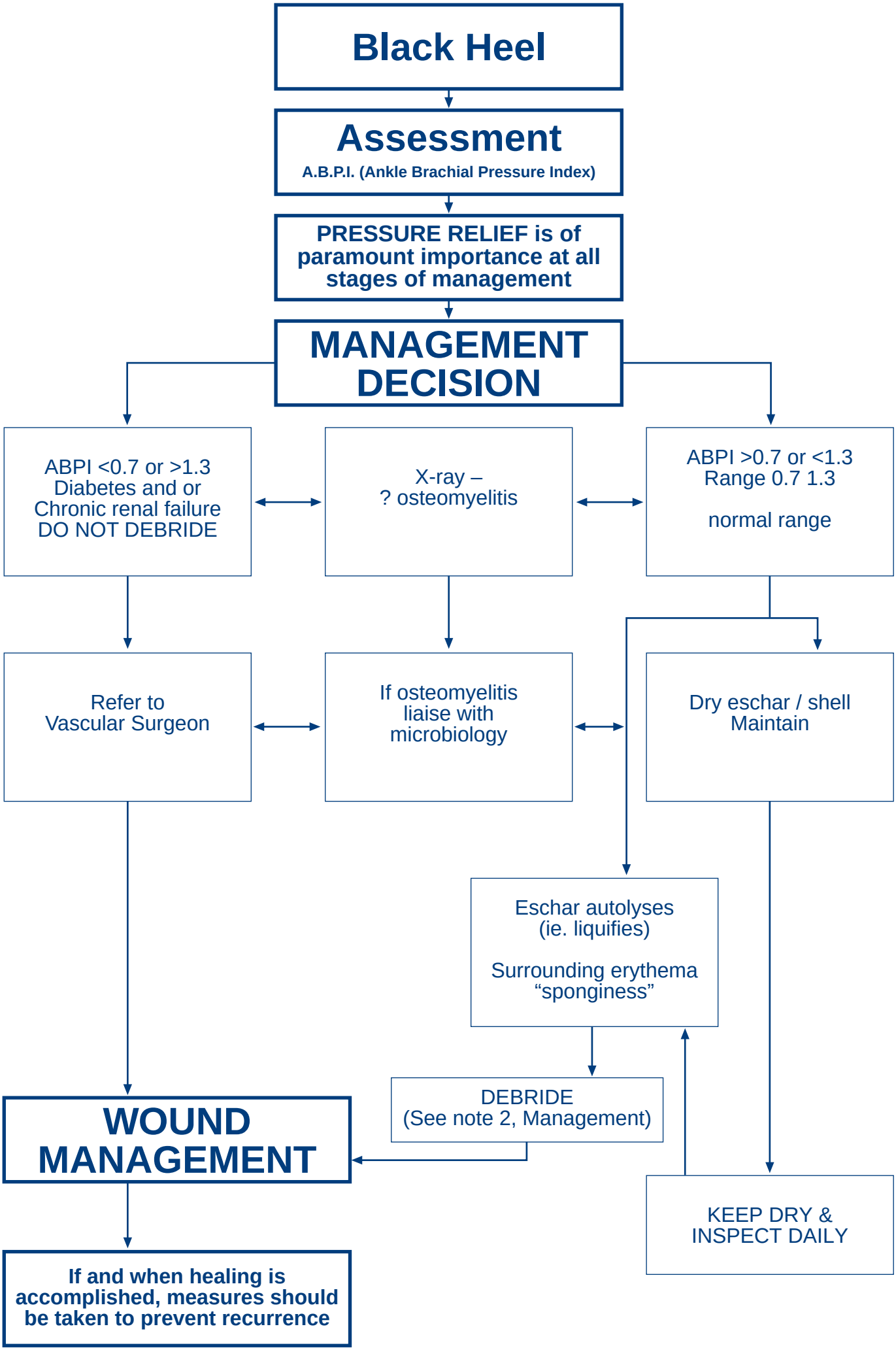
All black heels should be managed following a multidisciplinary discussion between nursing, podiatry and other team members and the development of an agreed plan which can be formulated, implemented and reviewed accordingly.

Reassessment

Regular monitoring of the black heel is essential - this should be a frequent and consistent process, with accurate documentation. A deterioration in the patient's physical status will also be influential.

A black heel with adequate sensation and vascular supply should show evidence of improvement within 2 to 4 weeks

While healing is the preferred goal, there are cases where the maintenance of comfort is the more realistic or appropriate goal!


Black Heel
Assessment
A.B.P.I. (Ankle Brachial Pressure Index)
PRESSURE RELIEF is of paramount importance at all stages of management
MANAGEMENT DECISION
ABPI <0.7 or >1.3
Diabetes and or
Chronic renal failure
DO NOT DEBRIDE
X-ray –
? osteomyelitis
ABPI >0.7 or <1.3
Range 0.7 1.3
normal range
Refer to
Vascular Surgeon
If osteomyelitis
liaise with
microbiology
Dry eschar / shell
Maintain
Eschar autolyses
(ie. liquifies)
Surrounding erythema
“sponginess”
DEBRIDE
(See note 2, Management)
WOUND MANAGEMENT
KEEP DRY &
INSPECT DAILY
If and when healing is accomplished, measures should be taken to prevent recurrence

Glossary

ABPI	Ankle Brachial Pressure Index. A hand-held Doppler ultrasound test used to determine the presence and degree of peripheral arterial disease in patients with leg ulcers.
Angiogenesis	This occurs during the proliferative phase of healing when new blood vessels infiltrate the wound and endothelial budding forms capillaries.
Apoptosis	Self destruction of cells or cell death which is part of the normal process of control of growth
Autolysis	The term used for the natural, spontaneous process of devitalised tissue being separated from viable tissue. Together with proteolytic enzymes, macrophage activity is thought to be responsible for autolysis.
Bulla / Bullae	Another term for blisters
Chronic Wound	A wound that has remained unhealed for 6 weeks. The reasons for delayed healing are complex and multiple with many overlapping factors such as malnutrition, pathology, and pressure.
Colonisation	Multiplication of micro-organisms without a corresponding host reaction.
Debridement	This is literally the removal of devitalised or contaminated tissue. The process can be sharp (scalpel or scissors), chemical, larval therapy or through the natural process of autolysis.
Erythema	A redness of the skin caused by congestion of capillaries in dermis due to injury, infection, inflammation or hyperaemia.

Eschar	Hard necrotic tissue generally found in pressure ulcers. The tissue has been occluded of blood and dies. It then dehydrates and becomes eschar. This eschar is black and is often hard.
Exudate	Serous fluid which has passed through the walls of a damaged or overextended vein. Often contains growth factors if the wound is acute, may contain bacteria, dead white cells etc if the wound is chronic. Exudate is exacerbated when oedema or hydrostatic pressure is present. Bacteria indirectly cause vaso permeability, and this results in increased exudates production. Some exudates is necessary for a moist wound environment.
Fistula	A passage that has formed between two organs eg. bowel and skin. The opening can leak faeces, bile or urine. Generally difficult to heal.
Formulary	A wound dressing formulary consists of an agreed *regularly revised,* limited list of dressings by a discrete group of practitioners, such as Primary Care Group, directorate, trust or health board.
Friable	Easily damaged - a wound that bleeds when touched
Granulation	During the proliferative phase of healing, this is the bright red tissue formed from new capillary loops or "buds" which are red/deep pink and moist with a "bumpy" appearance.
Hypergranulation	Overgranulation - excessive laying down of new blood vessels creating a bulge of highly vascular tissue which bleeds easily. The granulation tissue forms beyond the level of the surface level of the wound and prevents epithelialisation from occurring.
Maceration	A softening or sogginess of the tissue owing to retention of excessive moisture, which presents as moist, red/white and wrinkled.

Necrosis	The local death of tissue. This tissue is often black/brown in colour and leathery in texture.
Overgranulation *see* Hypergranulation	
Pemphigus	An uncommon chronic intra-epidermal blistering disease characterised by thin walled bullae.
Slough	The term for the thick yellow layer which often covers the wound and is strongly adherent to it. Its presence can be related to the end of the inflammatory stage of healing when dead cells have accumulated in the exudate.
Strike through	This is evidence of wound exudate appearing on the outer surface of the wound dressing, indicating a need for dressing change.Exudate saturating non-occlusive dressing which does not have a bacterial barrier is believed to act as a portal for the entrance of pathogens.

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