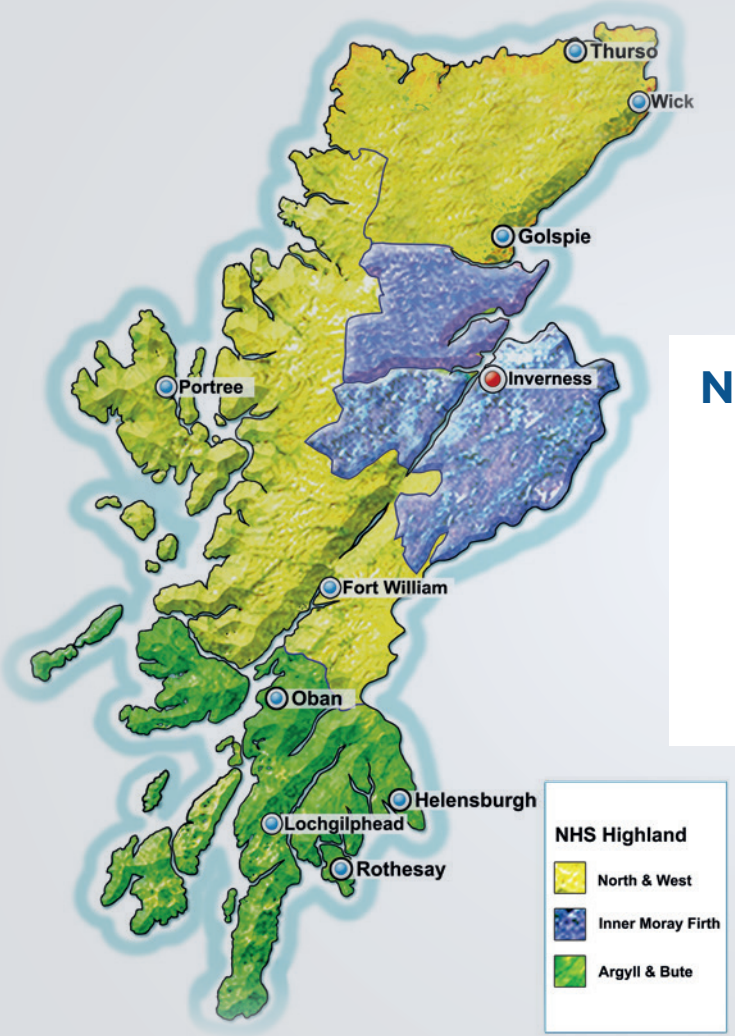


NHS Highland

NHS HIGHLAND BEST PRACTICE DFU AND FU PATHWAY AND STANDARDS OF CARE:

A VIP APPROACH

At FIRST PRESENTATION-Ensure ALL referrals are directed to podiatry and have a completed referral form

NHS HIGHLAND HOT FOOT PODIATRY CONTACTS

ARGYLL & BUTE

Campbeltown	**Tel:** 01586 788977
Helensburgh	**Tel:** 01436 655132
Lochgilphead	**Tel:** 01546 462199
Oban	**Tel:** 01631 788977
Rothesay and Dunoon	**Tel:** 01700 501529

SOUTH and MID INCLUDING RAIGMORE HOSPITAL
Tel: 01463 723250
E-mail: NHSH.SouthandMidPodiatry@nhs.scot
E-mail: NHSH.DiabetesFootClinic@nhs.scot

WEST
Fort William Health Centre **Tel:** 01397 709800
E-mail: NHSH.podiatrylochaber@nhs.scot

Skye & Lochalsh & Wester Ross -
Portree Hospital **Tel:** 01478 613200
E-mail: NHSH.podiatryskyelochalshandwestross@nhs.scot

NORTH
Caithness East/ NW Sutherland/ Helmsdale/Wick
Tel: 01955 880435
E-mail: NHSH.wick-podiatry-appointments@nhs.scot

Caithness West - Thurso	**Tel:** 01847 893442
East Sutherland- Golspie	**Tel:** 01408 633157

INTEGRATED PATHWAY FOR DIABETES AND ALL FOOT ULCERATION

NHS Highland

AT FIRST PRESENTATION - Ensure ALL referrals are directed to podiatry and have a completed referral form

D-FOOT international

International Diabetic Foot Care Group

HIGH RISK CO-MORBIDITIES

- HEART FAILURE
- END STAGE RENAL DISEASE
- DEPRESSION

HOLISTIC APPROACH

- MEDICAL / SOCIAL HISTORY
- CLINICAL EXAMINATION
- LABORATORY INVESTIGATIONS

KEY DOCUMENTS:

NICE CG 19
https://www.nice.org.uk/guidance/ng19

National Diabetes Foot Audit (NDFA)
http://content.digital.nhs.uk/footcare

ASSESSMENT OF DIABETES FOOT ULCER/FOOT ULCER (RAG)

PALPABLE PULSES
NO CLINICAL SIGNS OF INFECTION AS PER IDSA GUIDELINES FOR INFECTION*
TEXAS GRADE 0-1
EPUAP GRADE 1/2/3

NON COMPLICATED DFU & FU

Referral to local Community Podiatry
See your local guidelines/pathway

Standard of Care

4 weeks of treatment
Expect 50% reduction in ulcer size within 4 weeks.
If not, treat as **indicated by TEXAS.**

Regular reassessment and appropriate follow up.
Consider adding TLC-NOSF dressing to your standard of care.

INFECTION AND OR NON PALPABLE PULSES*
END STAGE RENAL DISEASE / ACTIVE HEART FAILURE
TEXAS GRADE 2
EPUAP GRADE 1/2/3

COMPLICATED DFU & FU

Referral to local Community Podiatry or DFC (within 48 hrs except weekends & bank holidays) as per local guidelines/pathway

Standard of Care

Regular reassessment and appropriate follow up.
Consider adding TLC-NOSF dressing to your standard of care.

ABSCESS
SPREADING / WET GANGRENE
FEVER OR OTHER SIGNS OF SEPSIS
TEXAS GRADE 3

SEVERELY COMPLICATED DFU & FU

Refer immediately for hospitalisation (as per your local pathway)

Once stabilised/ procedure completed/on discharge refer back to Local Community Podiatry

GOAL: CREATE ULCER FREE DAYS / GIVE ULCER REMISSION / LIMB SALVAGE/ QUALITY OF LIFE / DECREASE MORTALITY (NDFA)

STANDARD OF CARE

NON COMPLICATED DFU & FU

LOAD DISTRIBUTION: Patients should be educated to minimise standing and walking. Reduction of pressure is essential for ulcer protection and healing. Offer non-removable casting to offload plantar neuropathic, non-ischaemic, uninfected forefoot and midfoot Diabetes ulcers. Offer an alternative offloading device until casting can be provided (NICE NG 19). Promote the use of a load distribution device. Regular follow up should be undertaken to ensure clinical effectiveness and concordance.

METABOLIC CONTROL / HOLISTIC MANAGEMENT: Metabolic approach requires optimisation of glycaemic control, malnutrition and oedema (if present). Optimal management of relevant co-morbidities (including mental health) is mandatory.

INFECTION AND ASSESSMENT OF PERFUSION OF DFU/FU

INFECTION*: When there are local signs of infection empirical antibiotic therapy should be administered (refer to your local antibiotic guidelines). Removal of any necrotic or non-viable tissue following comprehensive assessment of infection severity and foot perfusion is required.

ASSESSMENT OF PERFUSION: When a Neuro ischaemic or ischaemic DFU (absence of palpable pulses and/or multiphasic handheld Doppler signal) does not show signs of healing, revascularisation should be considered. If ABPI is <0.5 and/or toe pressure is <30mmHg then refer urgently to vascular services.

LOCAL WOUND CARE: Frequent DFU & FU inspection inspection / assessment, debridement and redressing should be undertaken based on the DFU presentation. Dressing selection is based on the DFU findings, ulcer bed, exudate level, size, depth and local pain. To promote wound progression and in particular in the case of neuro ischaemic DFU consider dressings with Lipido-Colloid Technology with Nano-Oligo Saccharide Factor (TLC-NOSF) (Edmonds et al, 2018).

Version 1 created 08.01.2018. Review Jan 2020.

Bowen G, Russell D, Allam J, Goodeve M, Sharpe A, Mitchell L, Mealy H, Manu C. Adapted from Fast Track Pathway for Diabetes Foot Ulceration. Van Acker et al 2017

*IDSA Infectious Disease Society of America

Frequent Diabetes Foot Ulcers (DFU)/Foot Ulcers (FU) inspection/assessment, debridement and redressing should be undertaken based on the DFU findings.

Assess the wound bed and peri-wound using a local assessment tool. Optimise care with appropriate wound bed preparation.

Patient activation must be integrated at all stages of wound healing to support co-production and optimise outcomes.

VASCULAR:

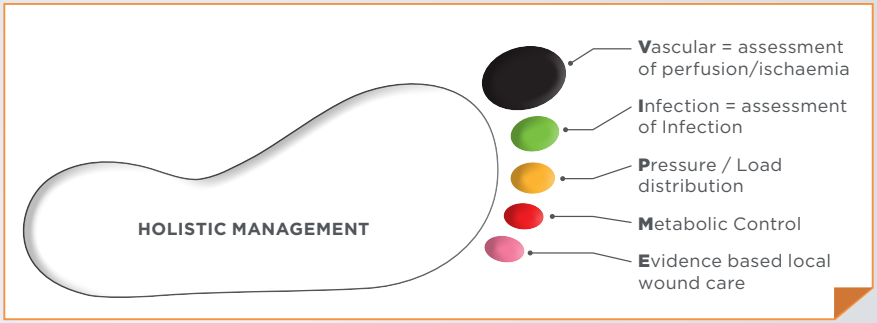
When carrying out a vascular assessment consider clinical features, subjective questioning to identify claudication or rest pain and carry out appropriate vascular tests in line with local vascular pathway.

INFECTION:

1. **EVIDENCE OF INFECTION:**
   Clinical features, refer to IDSA guidelines for grading and refer to local microbiology guidance (Micro guide) for recommended antibiotic cover.
2. **DIFFERENTIAL DIAGNOSIS**
   Consider other causes of red, hot swollen foot such as Charcot, Gout.
   If probe to bone or repeated course of antibiotics consider x-rays for potential bone infection.
   Identify claudication, rest pain and critical limb ischaemia and carry out appropriate vascular tests in line with local vascular pathway.
   First line sampling - tissue or pus sample from infected wound.
   Second line sampling - if first line is not available - deep wound swab.
   Bone biopsy - see local guidelines.
   Antibiotics to be commenced the same day and then consider changes to target sensitivities if appropriate.
3. **ANTIMICROBIAL WOUND DRESSINGS REFER TO:**
   Algorithm for stage of Wound Infection (Page 5)

PRESSURE/LOAD DISTRIBUTION

Assess for appropriateness of footwear - Provide appropriate device for load distribution. Develop, record and discuss load distribution plan with patient at all times.



The pillars of DFU standard of care with the addition of evidence-based local wound care (Wound UK, 2018)

EVIDENCE BASED WOUND CARE ASSESSMENT & MANAGEMENT:

DEBRIDEMENT – Appropriate debridement following assessment should be carried out on all DFUs and FUs. This removes surface debris, necrotic non-viable tissue and peri-wound callus. It improves healing by promoting the production of granulation tissue.

DRESSINGS – Use appropriate dressings to facilitate wound healing, based on wound bed characteristics, site of wound and patient preference.

To promote wound closure progression and in particular neuro-ischaemic DFU consider dressings that contain TLC-NOSF.

NHS Highland promote integrated and combined care pathways for patients. Podiatry teams will take the lead on developing care packages for DFUs and FUs.

HOLISTIC MANAGEMENT:

Optimise management of relevant co-morbidities particularly glycaemic control. Support patients health and well being through 'making every contact count' (MECC).

ALGORITHM FOR STAGE OF WOUND INFECTION AND TREATMENT RECOMMENDATIONS

NHS Highland

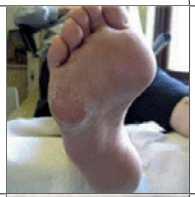
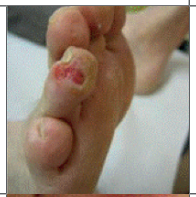
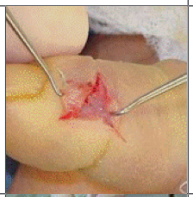
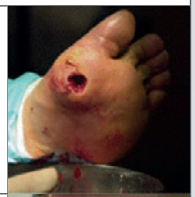
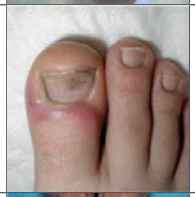
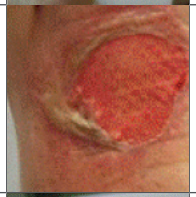
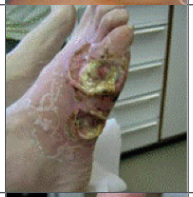
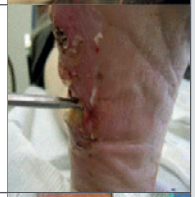
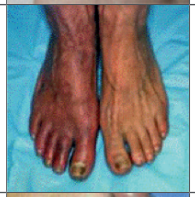
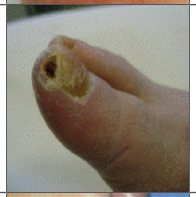
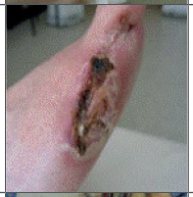
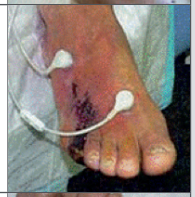
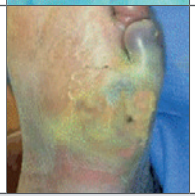
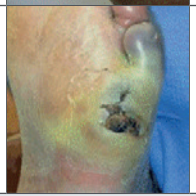
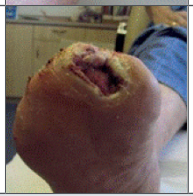
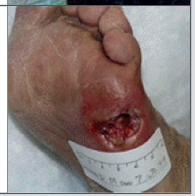
IMPORTANT: Stages 1-4 below are stages of wound infection. Patients may present with signs and symptoms of ANY stage of the algorithm. Clinicians do not have to start at Stage 1

When following the treatment advice in the stages below, ensure dressing changes are undertaken in line with manufacturers' instructions. Period referred to below are related to period between assessments, **NOT** dressing changes.

STAGE 1	STAGE 2	STAGE 3	STAGE 4
DEFINITION When 2 or more signs of contamination/colonisation are present, but healing is progressing normally with the following wound characteristics: • Exudate – low to moderate volume • Odour – minimal • Pain – minimal • Slough/necrosis.	**DEFINITION** When healing is not progressing normally or the wound is deteriorating, and the wound exhibits 2 or more of the following characteristics: • Change in pain levels in or around the wound • Erythema/redness • Exudate – high volumes in conjunction with changes is viscosity and consistency • Friable and bleeding granulation tissue • Heat • Hypergranulation tissue. • Inflammations/swelling/oedema. • Malodour • Slough/necrosis. • Superficial bridging.	**DEFINITION** When the wound is deteriorating with some of the following characteristics: • Change in exudates: haemopurulent or purulent • Erythema • Localised cellulitis • Localised oedema • Malodour increasing • Pain increasing.	**DEFINITION** When 1 or more signs or symptoms of systemic infection are present including some of the following patient and/or wound characteristics. This may lead to sepsis if not treated: • Spreading cellulitis • Pus/abscess • Patient systemically unwell • Pyrexia and increasing NEWS score • Raised white cell count/CR.P • Wound breakdown with or without satellite lesions.
TREATMENT 1. DO NOT SWAB. 2. Identify the aetiology of the wound and refer to an appropriate specialist for advice if you have any concerns e.g. vascular surgeon, lymphoedema team. 3. Refer all diabetic foot wounds to Podiatry/MDT. 4. Optimise wound healing with debridement and non-antimicrobial dressings. If no progress after 2 weeks re-assess the wound and review the treatment plan. 5. If signs of localised infection go to stage 2.	**TREATMENT** 1. DO NOT SWAB. 2. Undertake physical cleansing of the wound to remove debris from the wound bed; 3. Commence treatment with topical AWD; 4. Monitor wound progress, review at 2 weeks (the "two week challenge" as per Wounds International: a) If no signs of infection, STOP using the AWD and return to Stage 1 point 4 for actions. b) If improving, but there are still signs of infection, continue with AWD and review weekly until no signs of infection. c) If static or deteriorating, review AWD choice and seek further specialist advice regarding other treatment options; 5. If signs of spreading infection. Go to Stage 3.	**TREATMENT** IMPORTANT: if cellulitis is present, start systemic antibiotics and continue with the following steps. 1. Clean wound and then swab for microbiology. Follow the IW11 protocol. 2. Start or continue topical AWD. 3. Consider starting systemic antibiotics in accordance with National policy and local guidelines. 4. Review wound swab results when available. 5. Reconsider diagnosis and treatment plan including antibiotic regime. 6. If systemic antimicrobials are considered, follow the principles of *"Start smart then focus"*. 7. Monitor wound progress, review at 1-2 weeks – see Stage 2, point 4 for actions.	**TREATMENT** 1. If rapid deterioration or suspected systemic infection or sepsis, immediate referral for urgent medical/surgical advice and consider SEPSIS 6 . 2. AWD are unlikely to contribute much to the patient's well being at this stage. 3. After treatment of the systemic infection is complete, if a wound is still present, consider entering the algorithm at one of the previous stages.

TEXAS DIABETES FOOT ULCER CLASSIFICATION

NHS Highland

	GRADE							
Stage	**0**		**1**		**2**		**3**	
A	Pre or post lesion - Intact Skin		Superficial wound		Penetrating to tendon or capsule		Penetrating to bone or joint	
B	With infection		With infection		With infection		With infection	
C	With ischemia		With ischemia		With ischemia		With ischemia	
D	With infection and ischemia		With infection and ischemia		With infection and ischemia		With infection and ischemia	

with the support of URGO MEDICAL Healing people®

SCOTTISH ADAPTATION OF THE EUROPEAN PRESSURE ULCER ADVISORY PANEL (EPUAP)
PRESSURE ULCER CLASSIFICATION TOOL

NHS Highland

Early warning sign - Blanching erythema

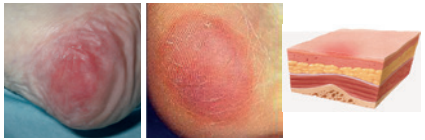
Areas of discoloured tissue that blanch when fingertip pressure is applied and the colour recovers when pressure released, indicating damage is starting to occur but can be reversed. On darkly pigmented skin blanching does not occur and changes to colour, temperature and texture of skin are the main indicators.

Grade 1 - Non Blanchable Erythema

Intact skin with non-blanchable redness, usually over a bony prominence.

Darker skin tones may not have visible blanching but the colour may differ from the surrounding area.

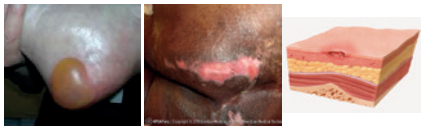
The affected area may be painful, firmer, softer, warmer or cooler than the surrounding tissue.



Grade 2 - Partial thickness skin loss

Loss of the epidermis/dermis presenting as a shallow open ulcer with a red/pink wound bed without slough or bruising.*

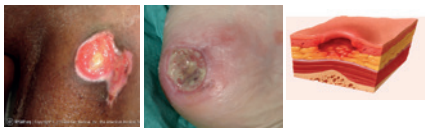
May also present as an intact or open/ruptured blister.



Grade 3 - Full thickness skin loss

Subcutaneous fat may be visible but bone, tendon or muscle is not visible or palpable.

Slough may be present but does not obscure the depth of tissue loss. May include undermining or tunnelling. **



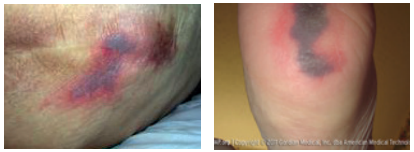
Grade 4 - Full Thickness Tissue Loss

Extensive destruction with exposed or palpable bone, tendon or muscle. Slough may be present but does not obscure the depth of tissue loss. Often includes undermining or tunnelling.**

Suspected Deep Tissue Injury:

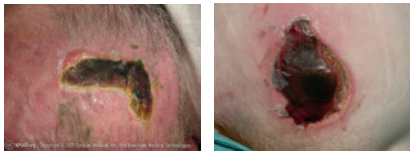
Epidermis will be intact but the affected area can appear purple or maroon or be a blood filled blister over a dark wound bed. Over time this skin will degrade and develop into deeper tissue loss.

Once grade can be established this must be documented.



Ungradable:

Full thickness skin / tissue loss where the depth of the ulcer is completely obscured by slough and / or necrotic tissue. Until enough slough and necrotic tissue is removed to expose the base of the wound the true depth cannot be determined. It may be a Grade 3 or 4 once debrided. Once grade can be established this must be documented.



Combination Lesions:

These are lesions where a combination of pressure and moisture contribute to the tissue breakdown.

They still need to be graded as pressure damage as above but awareness of other causes and treatments is needed.

See Excoriation & Moisture Related Skin Damage Tool

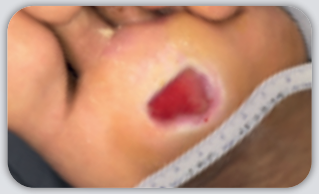
*Bruising can indicate deep tissue injury

**The depth of a Grade 3 or 4 pressure ulcer varies by anatomical location. Areas such as the bridge of the nose, ears, occiput and malleolus do not have fatty tissue so the depth of these ulcers may be shallow. In contrast areas which have excess fatty tissue can develop deep Grade 3 pressure ulcers where bone, tendon, muscle is not directly visible or palpable.

Ref: European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. (2009) Prevention and treatment of pressure ulcers: quick reference guide. National Pressure Ulcer Advisory Panel, Washington DC

NHS Quality Improvement Scotland (2009) Best Practice Statement: Prevention and management of pressure ulcers. NHS Quality Improvement Scotland, EdinburghScottish

UrgoStart Contact



URGOSTART CONTACT IS A TREATMENT TO REDUCE HEALING TIME WITH THE UNIQUE TLC-NOSF HEALING MATRIX[2,3,4,5]

TLC-NOSF* Healing Matrix has a unique mode of action to reduce healing time: inhibition of matrix metalloproteinases and promotion of angiogenesis[5,6]

UrgoStart Contact is for wounds with less than 30% slough.

UrgoStart Contact is highly comformable and can be used in difficult to dress areas.

Ideal in between toes.

UrgoStart Contact can be scrunched, folded and packed into cavity wounds.

UrgoStart treatment should be used in conjunction with the standard of care.

WHAT TO LOOK OUT FOR?

At the beginning you may experience a small increase of fluid from the wound, this is normal and will reduce in time. If needed, a secondary dressing can be used for absorption.

UrgoStart treatment should be used until complete healing.

WHEN TO CHANGE THE DRESSING?

UrgoStart Contact can be left in place for up to 7 days.

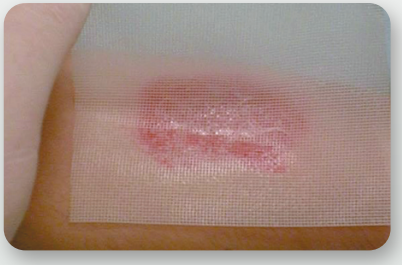
HOW DO I KEEP URGOSTART CONTACT IN PLACE?

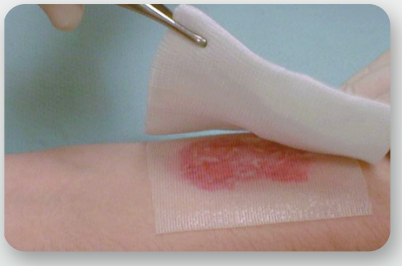
UrgoStart Contact can be secured in place with a secondary dressing or bandage as per your local formulary.

DIRECTIONS FOR USE

1. Cleanse the wound bed as per your local protocol
2. Dry the surrounding skin carefully
3. Apply **UrgoStart Contact** directly to the wound ensuring contact with the wound bed
4. **UrgoStart Contact** can be cut using sterile scissors if required - ensure a 1cm border is left around the wound edge to protect the peri-wound area
5. Secure in place with a suitable dressing or bandage considering the level of wound exudate
6. **UrgoStart Contact** can be left in place for up to 7 days.

UrgoStart Contact





WHAT SHOULD I DO IF THE WOUND IS INFECTED?

- Refer to the Algorithm for stage of wound infection and treatment recommendations (Page 5)
- Fight the infection locally with **UrgoClean Ag** or locality recommendations.
- If **UrgoStart Pad** treatment is stopped, once the wound is clear of infection restart treatment until complete healing.

CONTRAINDICATIONS

- **UrgoStart Contact** is contraindicated in cancerous wounds and wounds which may reveal a deep abscess
- Do not use when there is a known sensitivity to **UrgoStart Contact**.

ORDERING INFORMATION

UrgoStart Contact

TLC-NOSF* Healing Matrix (Contact layer format)

- Reduces healing time[1]
- High conformability and use in all awkward locations
- Protects the peri-wound skin
- Atraumatic and pain-free on removal

Dressing size	Pack size	Product code	PIP code	NHS code
5x7cm	10	550276	339-8971	EKB081
10x10cm	10	550278	386-1390	EKB087
15x20cm	10	550277	386-1382	EKB088

REFERENCES

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Active Heart failure: Patient on current treatment for heart failure (e.g. patients with known structural heart disease and shortness of breath and fatigue, reduced exercise tolerance).

Concordance: A negotiated, shared agreement between clinician and patient concerning treatment regimen(s), outcomes, and behaviours; a more cooperative relationship than those based on issues of compliance and non-compliance.

Debridement: Removal of devitalised tissue, to promote an optimal environment for healing. This can include surgical, sharp, autolytic, mechanical, chemical, enzymatic.

Depression: Patient on medical therapy for depression or depression symptoms which include feeling sad or having a depressed mood, loss of interest or pleasure in activities once enjoyed, changes in appetite (weight loss or gain unrelated to dieting), trouble sleeping or sleeping too much, loss of energy or increased fatigue, increase in purposeless physical activity (e.g., hand-wringing or pacing) or slowed movements and speech (actions observable by others), feeling worthless or guilty, difficulty thinking, concentrating or making decisions, thoughts of death or suicide. The symptoms must last at least two weeks for a diagnosis of depression. Depression is associated with increased mortality in patients with DFU.

Diabetes Foot Clinic: Diabetes Foot Centre which provides out patient and preferable inpatient care with a multidisciplinary team composed of diabetologist, podiatrist or specialist nurse and a surgeon, preferably with skills of revascularisation and good knowledge of surgery of deep foot infections with a 24H urgency service.

DFC: Diabetes Foot Clinic.

DFU: Diabetes Foot Ulcer.

End stage renal disease: Patient on renal replacement (i.e peritoneal dialysis or Haemodialysis).

FPT: Foot Protection Team.

FU: Foot Ulcer.

Gangrene: Death of tissue due to insufficient blood supply. Without infection this generally results in dry and black tissue, frequently called dry gangrene; when the tissue is infected, with accompanying putrefaction and surround cellulitis, it is often called wet gangrene.

Granulation: This is a light red, soft, moist and granular new connective tissue that appears on the surface of an ulcer during the healing process.

HRFU: High Risk Foot Ulcer.

Infection: See IDSA chart.

LOPS: Loss of protective sensation.

MDFT: Multi Disciplinary Foot Team.

Necrosis: Dead or devitalised tissue.

Neuro-ischaemia: Is the combined effect of Diabetes neuropathy and ischaemia, whereby macrovascular disease and, in some instances, microvascular dysfunction impair perfusion in a Diabetes foot.

RAG: Red/Amber/Green to signal status/severity

Signs of Re-epithelialisation: Appearance of new epithelium tissue covering the wound with reduction of ulcer surface.

TEXAS: The University of Texas wound classification system is a simple method for describing a foot lesion and quantifying prognosis of a diabetes foot ulcer. It correlates with the risk of amputation and the chance for ulcer healing.

IDSA

The IWGDF and the Infectious Disease Society of America (IDSA) have developed validated clinical criteria for recognising and classifying Diabetes foot infection	Grade/severity
No clinical signs of infection	Grade 1 / Uninfected
Superficial tissue lesion with at least two of the following signs: — Local warmth — Erythema >0.5–2cm around the ulcer — Local tenderness/pain — Local swelling/induration — Purulent discharge Other causes of inflammation of the skin must be excluded	Grade 2 / Mild
Erythema >2cm and one of the findings above or: — Infection involving structures beneath the skin/ subcutaneous tissues (eg deep abscess, lymphangitis, osteomyelitis, septic arthritis or fasciitis) — No systemic inflammatory response (see Grade 4)	Grade 3 / Moderate
Presence of systemic signs with at least two of the following: — Temperature >39°C or <36°C — Pulse >90bpm — Respiratory rate >20/min — PaCO2 <32mmHg — White cell count 12,000mm3 or <4,000mm3 — 10% immature leukocytes	Grade 4 / Severe

Development of Pathway by
Short Life Working Group NHS Highland
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NOTES

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