



# ALL WALES BEST PRACTICE DFU PATHWAYS AND STANDARDS OF CARE: A VIP APPROACH



This document has been developed by The Diabetic Foot Network and supported by an educational grant from Uργο Medical.

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*The following DFU pathway has been adapted from the DFU pathway in England and Scotland as presented in the:*

*Best practice recommendations for the implementation of a DFU treatment pathway. London: Wounds UK, 2018. [www.wounds-uk.com](http://www.wounds-uk.com)*

## **FOREWORD:**

Foot disease in patients with diabetes can have debilitating consequences in terms of reduced mobility, social isolation, pain, loss of earnings and ultimately leading to ulceration or amputation, with reduction in life expectancy. These personal costs together with the cost associated with management and treatment have been well documented and requires a whole system approach within our Local Health Boards, with patients at the centre of their care.

Across Wales the Podiatry services have taken a leading role in the management of foot disease supported by and working closely with the Multi Disciplinary Foot Team (MDFT). They also provide care across all provisions of healthcare from Primary, Community to Secondary care. This seamless model of care is advantageous in supporting patients along the foot disease pathway.

The enclosed documents should be used to support provision of care for patients with foot disease, ensuring they see the right person in the right place and with the competent skills.

The pathway also supports a step up, step down approach from the Foot Protection Teams (FPT) to the Multi Disciplinary Foot Teams (MDFT), maximising input required at point of crisis. The pathway will help support this and with the standards of Care we will ensure a focused uniformed approach in the management of foot ulceration across Wales is achieved.

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## AT FIRST PRESENTATION



### HIGH RISK CO-MORBIDITIES

- HEART FAILURE
- END STAGE RENAL DISEASE
- DEPRESSION

### HOLISTIC APPROACH

- MEDICAL / SOCIAL HISTORY
- CLINICAL EXAMINATION
- LABORATORY INVESTIGATIONS



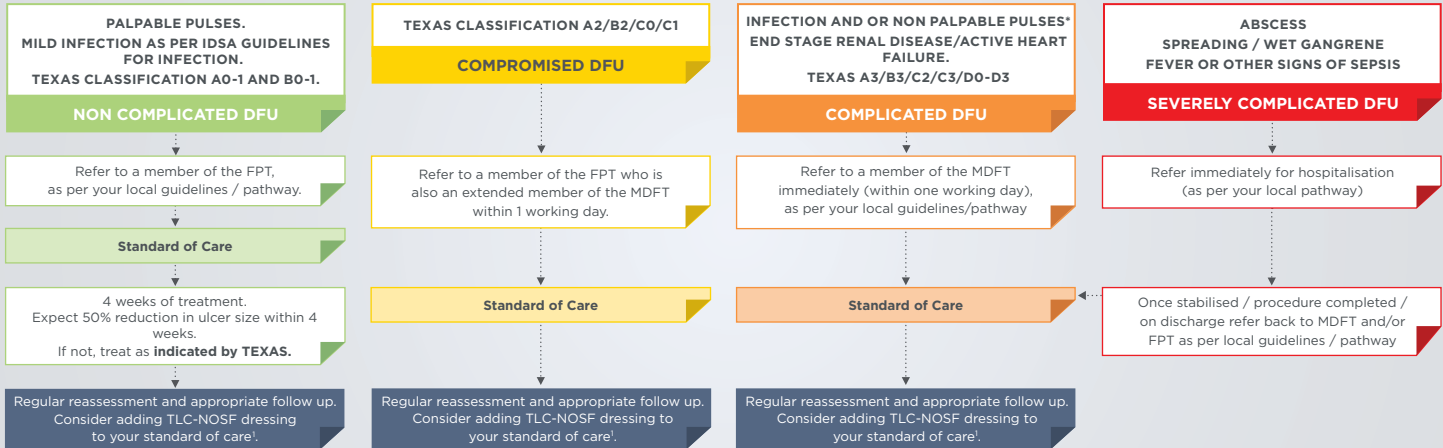
### KEY DOCUMENTS:

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



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

## ASSESSMENT OF THE DIABETIC FOOT ULCER (RAG)



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

## STANDARD OF CARE

### NON COMPLICATED DFU

**OFFLOADING:** 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-ischaeamic, uninfected forefoot and midfoot diabetic ulcers. Offer an alternative offloading device until casting can be provided (NICE NG 19). Regular follow up should be undertaken to ensure clinical effectiveness and concordance. Review LEAP document : <http://www.weds-wales.co.uk/supporting-documents-and-information.htm>

**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

**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 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).

# GLOSSARY

**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).

**Co-production/activation:** 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.

**Diabetic Foot Clinic:** Diabetic 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.

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

**FPT:** Foot Protection Team.

**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.

**Infection:** See IDSA chart.

**MDFT:** Multi Disciplinary Foot Team.

**Necrosis:** Dead or devitalised tissue.

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

**RAG:** Red/Yellow/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 diabetic foot lesion. 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 diabetic 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 >38°C or <36°C — Pulse >90bpm — Respiratory rate >20/min — PaCO <sub>2</sub> <32mmHg — White cell count 12,000/mm <sup>3</sup> or <4,000/mm <sup>3</sup> — 10% immature leukocytes	Grade 4 / Severe

## TEXAS CLASSIFICATION SYSTEM

STAGE	GRADE			
	0	I	II	III
A	Pre or postulcerative lesion completely epithelised	Superficial wound not involving tendon, capsule or bone	Wound penetrating to tendon or capsule	Wound penetrating to bone or joint
B	With Infection	With Infection	With Infection	With Infection
C	With ischemic	With ischemic	With ischemic	With ischemic
D	Infection and ischemic	Infection and ischemic	Infection and ischemic	Infection and ischemic

**Frequent Diabetic Foot Ulcers (DFU) 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.

**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.

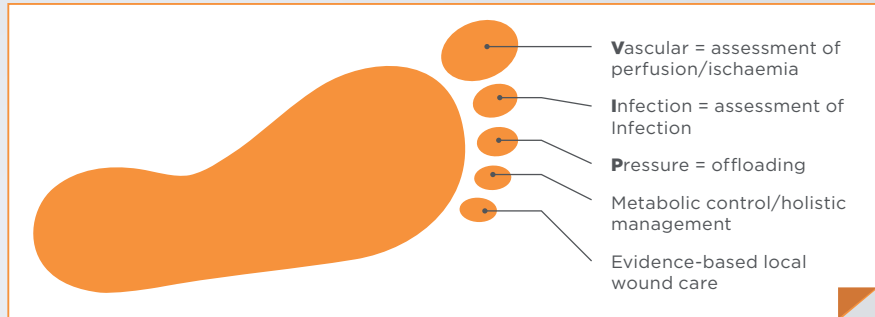
Antibiotics to be commenced the same day and then consider changes to target sensitivities if appropriate.

### 3. ANTIMICROBIAL WOUND DRESSINGS REFER TO:

<http://www.weds-wales.co.uk/supporting-documents-and-information.htm>

## PRESSURE:

See LEAP pathway: <http://www.weds-wales.co.uk/supporting-documents-and-information.htm>



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

## WOUND CARE ASSESSMENT & MANAGEMENT:

**DEBRIDEMENT** - Debridement should be carried out in all DFUs to remove surface debris, necrotic non-viable tissue and peri-wound callus. This facilitates accurate wound assessment, facilitates wound bed preparation and 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. See your local wound care formulary).

## HOLISTIC MANAGEMENT:

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

# NATIONAL DIABETIC FOOT AUDIT

## SINBAD - SCORING FOR INDEX ULCER (MOST SEVERE ULCER WITH HIGHEST SINBAD SCORE)

SINBAD	0	1	Score
Site	Forefoot	Rearfoot	0 /1
Ischaemia	At least one Pedal pulse	Absent pulses +/- other suggestive clinical signs	0 /1
Neuropathy	Intact	Not intact	0 /1
Bacterial Load	None	Present	0 /1
Area	Ulcer < 1cm <sup>2</sup>	> 1cm <sup>2</sup>	0 /1
Depth	Superficial confined to skin and subcutaneous tissue	To tendon and bone	0 /1

Index Ulcer	Most Severe Ulcer with highest SINBAD score
Hindfoot	Includes the tarso-metatarsal joints and everything proximal to them below the ankle
Ischaemia	Absent pulses +/-other suggestive clinical signs
Neuropathy	Impaired sensation using monofilament or touch or vibration or other stimulus used in routine clinical practice <b>NOTE:</b> If you score Neuropathy <b>Yes</b> , it means that the person has <b>LOST SENSATION</b> and <b>CANNOT FEEL</b> the stimulus on the foot of the index ulcer
Bacterial infection	Clinical signs of infection
Area	Product of greatest diameters or other method
Depth	Assessment by eye +/- sterile probe

