University Hospitals of Leicester NHS
NHS Trust

Antimicrobial Guidelines for the Empirical Management of Diabetic Foot Infections

APPROVED BY:	**UHL Policies and Guidelines Committee**
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Introduction

This guideline aims to promote the consistent care of patients with diabetic foot infections across UHL.

Diabetic foot infections (infected foot ulcers, gangrene and osteomyelitis) are a major cause for admission to hospital. If not treated appropriately, foot infections can lead to septicaemia, amputation and death. A multidisciplinary team approach reduces morbidity and mortality in affected patients.

The presentation of diabetic foot infections varies and may include, infected foot ulcer, osteomyelitis and/or extensive infected gangrene. Patients with a neuropathic or neuroischaemic foot often have little or no pain leading to delayed presentation and diagnosis. Patients may therefore present with an "asymptomatic" limb or life threatening infection, often the only clue being deterioration in glycaemic control.

Microbiological samples

For the appropriate management of diabetic foot infection it is important to collect the correct microbiological, and when necessary histological specimens. Ideally, samples should be taken prior to initiating antimicrobial therapy however treatment should not be delayed in severe infection. After debridement, deep tissue or bone specimens should be obtained as these have the best correlation between isolate and causative organism.

Antibiotic therapy should be reviewed with the results of bone or deep tissue specimens and therapy amended if required.

Severity of Infection **(as defined by IDSA guidelines)**

Mild infection; presence of 2 or more manifestations of inflammation (purulence, or erythema, pain, tenderness, warmth or induration), but any cellulitis/erthema extends to 2 or less cm around the ulcer and infection is limited to the skin or superficial subcutaneous tissues ; no other local complications or systemic illness.

Moderate infection ; (as above) in a patient who is systemically well and metabolically stable but which has 1 or more of the following characteristics: cellulitis extending greater than 2 cm, lymphangitic streaking, spread beneath the superficial fascia, deep tissue abscess, and involvement of muscle tendon, joint or bone.

Severe infection; infection in a patient with systemic toxicity or metabolic instability(e.g. fever, rigors, tachycardia, hypotension, confusion, vomiting, leucocytosis, severe hyperglycaemia)

Referral to Diabetic Foot Team

All patients admitted to UHL with a diabetic foot infection and treated under this guideline must be referred to the Diabetes Specialist Nurses via ICM.

Recommended Treatment Summary

Severity of Infection	Route	First line antibiotic	First line antibiotics for allergy to penicillin	Alternative agents for allergy or intolerance in diabetic foot clinic only	Duration of treatment (Review all treatment with microbiology results)
Mild	PO	Flucloxacillin 1g QDS	Doxycycline 200mg OD†	Clindamycin 300mg QDSΔ	14 days
Moderate	PO or Home IV	Flucloxacillin 1g QDS and Ciprofloxacin 500mg BD and Metronidazole 400mg TDS After discussion with Microbiology: Ertapenem 1g OD and Teicoplanin 400mg BD for one day followed by 600mg OD	Doxycycline 200mg OD† and Ciprofloxacin 500mg BD and Metronidazole 400mg TDS Discuss with microbiologist	Linezolid 600mg BD* and Ciprofloxacin 500mg BD and Metronidazole 400mgTDS Discuss with microbiologist	Variable 14 days initially Review in foot clinic at one week to check progress. For inpatients and discharges requiring a total duration longer than 14 days a Microbiology Verification code should be sought
Severe	In-patient IV	Tazocin 4.5g TDS and Vancomycin 1g BD Vascular surgery referral if necessary	Meropenem 500mg QDS and Vancomycin 1g BD Vascular surgery referral if necessary	Discuss with microbiologist	Variable 14 days initially Regular ward review by diabetic foot team For inpatients requiring a duration beyond 14 days a Microbiology Verification code should be sought
Osteomyelitis will necessitate at least 6 weeks of appropriate therapy and for calcaneal osteomyelitis 3 months + orthopaedic review if appropriate					

Essential patient Counselling and Monitoring

[Δ]Clindamycin

- Patients should be advised to stop taking their Clindamycin immediately if they develop diarrhoea, and to seek advise from the diabetic foot team

[†] Doxycycline

- Counsel patient about photosensitivity; patients should be advised to protect the skin from sunlight even on a cloudy day, and not to use sunbeds

***Linezolid**

- Counsel patient about the risk of optic and peripheral neuropathy
- Take a full blood count before first dose is given
- Repeat full blood count at weekly intervals
- Remember, Linezolid should not be continued for longer than four weeks.

Additional Considerations:

IV to oral switch:

- Where a patient has been prescribed IV antibiotics for the purpose of enabling administration while the patient is unable to take medications orally, the antibiotics should be switch to oral as soon as possible.

Renal/Hepatic Impairment:

- Diabetic patients will often have compromised renal function.
- Dose reductions are required in renal impairment. Refer to the Antimicrobial Website, BNF or Pharmacist for additional advice. Refer to Pharmacist for advice on treatment in patients with liver impairment. For information on contraindications, cautions, drug interactions and adverse effects refer to the British National Formulary www.bnf.org or the Medicines Compendium www.medicines.org.uk

References

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Review Record			
Date	**Issue No.**	**Reviewed By**	**Description of change (if any)**
1.09	2	S Bukhari	No changes
1.10	3	S Bukhari	No changes
3.11	4	K. Dawson	Imipenem replaced by Meropenem
11.11	5	D. Modha	Title of document changed from Antimicrobial Guidelines for the Management of Infected Diabetic Foot Ulcers in Adults. Additional sections: Introduction, microbiological samples, severity of infection, referral to diabetic foot team, essential counselling and monitoring, IV to oral switch. Antibiotic choices updated.