Diabetic Foot Infection Empirical Antibiotic Guideline NHS Borders

General

- Inform Diabetes and Diabetic Podiatry Teams of all hospital admissions with diabetic foot infection
- If concern re. collection, discuss with Orthopaedics
- If concern re. necrosis, discuss with Vascular Team
- Check previous Microbiology results before prescribing empirical antibiotics
- Doses stated assume adult patient with normal renal and hepatic function. If renal failure/dysfunction or hepatic failure/dysfunction, seek advice
- Consider suitability for OPAT in moderate infections or Osteomyelitis – discuss with Infection Specialist

	MILD INFECTION	MODERATE INFECTION	SEVERE INFECTION	OSTEOMYELITIS
Symptoms	• Pus or two or more of: erythema, warmth, pain, tenderness, induration • Any cellulitis <2cm around the wound confined to skin or subcutaneous tissue, and • No evidence of systemic infection	• Lymphatic streaking, deep tissue infection involving subcutaneous tissue, tendon, fascia, bone or abscess • Cellulitis >2cm and • No evidence of systemic infection	• Any infection accompanied by systemic toxicity (fever, chills, shock, vomiting, confusion, metabolic instability). The presence of critical ischaemia of the involved limb may make the infection severe	
Treatment duration	• Treatment with the following agents is recommended for 7 days, after which treatment should be reviewed and continued or discontinued as appropriate	• Treatment with the following agents is recommended for 7 days, after which treatment should be reviewed and continued or discontinued as appropriate • IV antibiotics may be switched to oral preparation after an appropriate interval	• Treatment with the following agents is recommended for 10-14 days, after which treatment should be reviewed and continued or discontinued as appropriate • IV antibiotics may be switched to oral preparation after an appropriate interval	• Treat for at least 6 weeks. Longer courses may be required. Usually at least 2 weeks of IV therapy in acute setting but oral therapy may be suitable in non-acute setting.

Antibiotic-naïve	**Primary** • Oral Flucloxacillin 1g QDS① **Alternative** • Oral Doxycycline 100mg BD	**Primary** • Oral Flucloxicillin 1g QDS or IV 2g QDS① Add oral metronidazole 400mg TDS if anaerobes suspected **Alternatives** • Oral Co-amoxiclav 625mg TDS, or • Oral Clindamycin⑥ 450mg QDS or IV 600mg QDS. Add oral metronidazole 400mg TDS if anaerobes suspected	**Primary** • IV flucloxacillin 2g QDS① + IV gentamicin ①②③ + IV clindamycin⑥ 600mg – 1200 mg qds NOTE: Oral therapy inappropriate **If allergic to penicillin,** • IV vancomycin①② (aim for a trough vancomycin concentration of 15-20mg/L)①② + IV gentamicin①②③ + IV clindamycin⑥ 600mg – 1200 mg qds **Oral switch.** Review Microbiology results. Consider broader spectrum than below based on microbiology results and patient's progress. Flucloxacillin 1g QDS① + Clindamycin⑥ 450 mg QDS **Or, if allergic to penicillin** Linezolid① 600mg BD	**Severe or Acute (IDSA/IWGDF-PEDIS Grade4)** • IV Flucloxacillin 2g QDS① +Oral Clindamycin⑥ 450mg QDS +/- IV Gentamicin①②③ **Moderate or Non-Acute (IDSA/IWGDF-PEDIS Grade 2-3)** • Oral Flucloxacillin 1g QDS① + Oral Clindamicin⑥ 450mg QDS +Oral Ciprofloxacin 750mg BD④ **Penicillin allergy –** remove flucloxacilin from combinations above
Not antibiotic-naïve	**Primary** • Oral Doxycycline 100mg BD	**Primary** • Oral Co-amoxiclav 625mg TDS or IV 1.2g TDS **Alternatives** • Oral Clindamycin⑥ 450 mg QDS + IV metronidazole 500mg TDS • IV vanomycin ①② + IV metronidazole 500mg TDS	**Primary** • IV ertapenem⑤ 1g daily + IV vancomycin (aim for a trough vancomycin concentration of 15-20mg/L)①② **If allergic to penicillin** • IV vancomycin①② (aim for a trough vancomycin concentration of 15-20mg/L)①② + IV gentamicin ①②③ + IV metronidazole 500mg TDS **Oral switch** • Flucloxacillin 1g QDS + Ciprofloxacin④ 500mg (750mg if *Pseudomonas* isolated) BD + Metronidazole 400mg TDS or • Clindamycin⑥ 450mg QDS +Ciprofloxacin④500mg (750mg if *Pseudomonas* isolated) BD	**Severe or Acute** • IV ertapenem 1g daily + IV vancomycin (aim for a trough vancomycin concentration of 15-20mg/L)①② **Penicillin allergy** • IV vancomycin (aim for a trough vancomycin concentration of 15-20mg/L)①② + oral Clindamycin 450mg QDS +/- IV Gentamicin①②③ **Moderate or Non-Acute** • Oral Flucloxacillin 1g QDS + Oral Clindamycin⑥ 450mg QDS +Oral Ciprofloxacin④750mg BD **Penicillin allergy –**remove flucloxacillin from combination above

MRSA	Oral Doxycycline 100mg BD	**Primary** • IV vancomycin①② and discuss with diabetes / microbiology **Oral switch** **Non-osteomyelitis** • Doxycyline 100mg BD	**Primary** • IV vancomycin①② (aim for a trough vancomycin concentration of 15-20mg/L)①② **Oral switch** **Non-osteomyelitis** • Doxycyline 100mg BD	**Acute** IV Vancomycin ①② (aim for a trough vancomycin concentration of 15-20mg/L)①② + oral Rifampicin 450mg BD **Non-Acute** Usually combination therapy depending on sensitivities and Infection Specialist advice.
Dosing frequencies: BD = twice a day, QDS = four times a day, TDS = three times a day IV = intravenous, MRSA = methicillin resistant *Staphylococcus aureus,* MSSA= methicillin sensitive *Staphylococcus aureus* ①Requires monitoring for complications ② Monitor serum concentration ③Maximum 3 days then review. Switch to ciprofloxacin empirically or alternative agent based on sensitivities. ④Fluorquinolone warning: EMEA warning Nov 2018 states that fluoroquinolones should generally be avoided in patients who have previously had serious side effects with a fluoroquinolone antibiotic; use with special caution in the elderly, patients with kidney disease and organ transplant patients (due to higher risk of tendon injury). Avoid concomitant use with corticosteroids. Patients should be advised to stop the fluoroquinolone and seek medical advice if they experience side effects involving muscles, tendons, joints or the nervous system. www.ema.europa.eu MHRA warning Nov 2018 also advices careful benefit-risk assessment in patients at risk for aortic aneurysm and dissection; patients should be advised to seek immediate medical attention in case of severe abdominal, chest or back pain. www.gov.uk. These cautions should be considered if a quinolone-based regimen is necessary. ⑤Ertapenem is a beta-Lactam antibacterial. Avoid if history of immediate hypersensitivity reaction to beta-lactam antibacterials. ⑥ Caution: 20-25% of MSSA isolated from STI/bone samples are resistant to clindamycin. Ref. Barwell et al. Diabetic Foot Infection: Antibiotic therapy and good practice recommendations. Int. J. Clin. Pract. 2017; 71: e13006				