Diabetic foot infection: antimicrobial prescribing

Refer to hospital immediately and inform multidisciplinary foot care service if there are limb-threatening or life-threatening problems such as:

- ulceration with fever or any signs of sepsis, or
- ulceration with limb ischaemia, or
- suspected deep-seated soft tissue or bone infection, or
- gangrene

For all other active diabetic foot problems, refer to foot service within 1 working day

Presentation: diabetic foot infection

- Start antibiotic treatment as soon as possible
- Take samples for microbiological testing before, or as close as possible to, the start of antibiotic treatment
- When choosing an antibiotic, take account of prescribing considerations

Give advice about:

- possible adverse effects of the antibiotics
- seeking medical help if symptoms worsen rapidly or significantly at any time, or do not start to improve within 1 to 2 days

When microbiological results are available:

- review the choice of antibiotic, and
- change the antibiotic according to results, using a narrow spectrum antibiotic, if appropriate

Reassess if symptoms worsen rapidly or significantly at any time, do not start to improve within 1 to 2 days, or the person becomes systemically very unwell or has severe pain out of proportion to the infection. Take account of:

- other possible diagnoses, such as pressure sores, gout or non-infected ulcers
- symptoms or signs suggesting something more serious such as limb ischaemia, osteomyelitis, necrotising fasciitis or sepsis
- previous antibiotic use

Refer to hospital if needed

Prevention

- Do not offer antibiotics to prevent diabetic foot infection
- Advise seeking medical help if symptoms of diabetic foot infection develop

Background

In diabetes, all foot wounds are likely to be colonised with bacteria

Diabetic foot infection has at least 2 of:

- local swelling or induration
- erythema
- local tenderness or pain
- local warmth
- purulent discharge

Severity is classified as:

- Mild - local infection with 0.5 cm to less than 2 cm erythema
- Moderate - local infection with more than 2 cm erythema or involving deeper structures (such as abscess, osteomyelitis, septic arthritis or fasciitis)
- Severe - local infection with signs of a systemic inflammatory response

Prescribing considerations

When choosing an antibiotic, take account of:

- the severity of infection (mild, moderate or severe)
- the risk of complications
- previous microbiological results
- previous antibiotic use
- patient preference

Give oral antibiotics first line if possible

Review intravenous antibiotics by 48 hours and consider switching to oral antibiotics if possible

Review need for continued antibiotics regularly

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Diabetic foot infection: antimicrobial prescribing

Mild infection: choice of antibiotic for adults aged 18 years and over	
Antibiotic	**Dosage and course length**
First-choice oral antibiotic	
Flucloxacillin	500 mg to 1 g four times a day for 7 days
Alternative oral antibiotics for penicillin allergy or if flucloxacillin is unsuitable (for people who are not pregnant; guided by microbiological results when available)	
Clarithromycin	500 mg twice a day for 7 days
Doxycycline	200 mg on first day, then 100 mg once a day (can be increased to 200 mg daily) for 7 days
Alternative oral antibiotic for penicillin allergy in pregnancy	
Erythromycin	500 mg four times a day for 7 days

Notes

For **all antibiotics**: see BNF for appropriate use and dosing in specific populations, for example, people with hepatic impairment or renal impairment, or who are pregnant or breastfeeding. A longer course (up to a further 7 days) may be needed based on clinical assessment. However, skin does take some time to return to normal, and full resolution of symptoms at 7 days is not expected.

For **flucloxacillin:** in September 2024, the upper dose of 1 g four times a day was an off-label use. See NICE's information on prescribing medicines.

Erythromycin is preferred if a macrolide is needed in pregnancy, for example, if there is true penicillin allergy and the benefits of antibiotic treatment outweigh the harms. See the Medicines and Healthcare products Regulatory Agency (MHRA) Public Assessment Report on the safety of macrolide antibiotics in pregnancy.

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Diabetic foot infection: antimicrobial prescribing

Moderate or severe infection: choice of antibiotic for adults aged 18 years and over	
Antibiotic	**Dosage and course length**
First-choice antibiotics (guided by microbiological results when available). In severe infection give intravenously for at least 48 hours (until stabilised). Course length is based on clinical assessment: minimum 7 days and up to 6 weeks for osteomyelitis (use oral antibiotics for prolonged treatment)	
Flucloxacillin	1 g four times a day orally **or** 1 to 2 g four times a day intravenously, **WITH OR WITHOUT**
gentamicin	Initially 5 to 7 mg/kg once a day intravenously, subsequent doses adjusted according to serum gentamicin concentration, **AND/OR**
metronidazole	400 mg three times a day orally **or** 500 mg three times a day intravenously
Co-amoxiclav	500/125 mg three times a day orally **or** 1.2 g three times a day intravenously, **WITH OR WITHOUT**
gentamicin	Initially 5 to 7 mg/kg once a day intravenously, subsequent doses adjusted according to serum gentamicin concentration
Co-trimoxazole (in penicillin allergy)	960 mg twice a day orally **or** 960 mg twice a day intravenously (can be increased to 1.44 g twice a day), **WITH OR WITHOUT**
gentamicin	Initially 5 to 7 mg/kg once a day intravenously, subsequent doses adjusted according to serum gentamicin concentration, **AND/OR**
metronidazole	400 mg three times a day orally **or** 500 mg three times a day intravenously
Ceftriaxone	2 g once a day intravenously, **PLUS**
metronidazole	400 mg three times a day orally **or** 500 mg three times a day intravenously

Moderate or severe infection: choice of antibiotic for adults aged 18 years and over, continued	
Antibiotic	**Dosage and course length**
Additional antibiotic choices if Pseudomonas aeruginosa suspected or confirmed (guided by microbiological results when available)	
Piperacillin with tazobactam	4.5 g three times a day intravenously (can be increased to 4.5 g four times a day)
Clindamycin	150 to 300 mg four times a day orally (can be increased to 450 mg four times a day) **or** 600 mg to 2.7 g daily intravenously in two to four divided doses, increased if necessary in life-threatening infection to 4.8 g daily (max per dose 1.2 g), **PLUS**
ciprofloxacin !	500 mg twice a day orally **or** 400 mg two or three times a day intravenously, **AND/OR**
gentamicin	Initially 5 to 7 mg/kg once a day intravenously, subsequent doses adjusted according to serum gentamicin concentration
Antibiotics to be added if MRSA infection suspected or confirmed (combination therapy with an antibiotic listed above)	
Vancomycin	15 to 20 mg/kg two or three times a day intravenously (maximum 2 g per dose), adjusted according to serum vancomycin concentration
Teicoplanin	Initially 6 mg/kg every 12 hours for three doses, then 6 mg/kg once a day intravenously
Linezolid (if vancomycin or teicoplanin cannot be used; specialist use only)	600 mg twice a day orally **or** 600 mg twice a day intravenously

Notes

See over page.

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Moderate or severe infection: choice of antibiotic for adults aged 18 years and over

Notes

For **all antibiotics**: see BNF for appropriate use and dosing in specific populations, for example, people with hepatic impairment or renal impairment, or who are pregnant or breastfeeding, and administering intravenous (or, where appropriate, intramuscular) antibiotics. Other antibiotics may be appropriate based on microbiological results and specialist advice. Skin takes some time to return to normal, and full resolution of symptoms after a course of antibiotics is not expected. Review the need for continued antibiotics regularly.

For **oral antibiotics:** give oral antibiotics first-line if the person can take oral medicines, and the severity of their condition does not require intravenous antibiotics.

For **intravenous antibiotics**: review by 48 hours and consider switching to oral antibiotics if possible.

For **additional antibiotic choices if Pseudomonas aeruginosa is suspected or confirmed:** these antibiotics may also be appropriate in other situations based on microbiological results and specialist advice.

For **flucloxacillin:** in September 2024, the dose of 1 g four times a day was an off-label use. See NICE's information on prescribing medicines..

For **gentamicin, vancomycin and teicoplanin:** see BNF for information on therapeutic drug monitoring and monitoring of patient parameters.

For **co-trimoxazole:** see BNF for information on monitoring of patient parameters. In September 2024, use of co-trimoxazole for diabetic foot infection was an off-label use. See NICE's information on prescribing medicines.

For **linezolid:** see BNF for information on monitoring of patient parameters.

(!) **Warning:** for **ciprofloxacin**, see the MHRA January 2024 advice on restrictions and precautions for using fluoroquinolone antibiotics because of the risk of disabling and potentially long-lasting or irreversible side effects. Fluoroquinolones must now only be prescribed when other commonly recommended antibiotics are inappropriate.

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