Leg ulcer infection: antimicrobial prescribing

NICE National Institute for Health and Care Excellence

Background

- There are many causes of leg ulcer
- Few leg ulcers are clinically infected
- Most leg ulcers are colonised by bacteria but this doesn't delay healing
- Antibiotics don't promote healing when a leg ulcer is not clinically infected

Symptoms and signs of an infected leg ulcer include:

- cellulitis
- pyrexia
- increased pain
- rapid extension of the area of ulceration
- malodour
- increased exudate

Prescribing considerations

When choosing an antibiotic, take account of:

- the severity of symptoms
- the risk of complications
- previous antibiotic use

Give oral antibiotics first line if possible

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

Microbiological sampling

If a sample is taken for microbiological testing, take from deep within the ulcer after cleaning

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Leg ulcer infection

- Offer an antibiotic only when there are symptoms or signs of infection
- When choosing an antibiotic, take account of prescribing considerations

Give advice about seeking medical help if:

- **symptoms of infection (enlarging ulcer, pain, heat, swelling or redness) worsen rapidly or significantly at any time, or**
- **symptoms of infection do not start to improve within 2 to 3 days**

If worsening infection or no improvement after antibiotics, consider microbiological testing

When microbiological results are available:

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

Reassess if symptoms worsen rapidly or significantly at any time, do not start to improve within 2 to 3 days, or the person becomes systemically very unwell or has severe pain out of proportion to the infection. Take account of:

- **symptoms or signs suggesting something more serious such as sepsis, necrotising fasciitis, osteomyelitis or lymphangitis**
- **comorbidities such as diabetes or immunosuppression**
- **previous antibiotic use, which may have led to resistant bacteria**

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Refer to hospital if there are symptoms or signs of a more serious illness or condition such as sepsis, necrotising fasciitis or osteomyelitis

Consider referring or seeking specialist advice if the person:

- has a higher risk of complications
- has lymphangitis
- has spreading infection not responding to oral antibiotics
- cannot take oral antibiotics (to explore possible options for intravenous antibiotics at home or in the community)

When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

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Choice of antibiotic: adults aged 18 years and over

Antibiotic[1]	Dosage and course length[2]
First choice oral antibiotic	
Flucloxacillin	500 mg four times a day for 7 days
Alternative first choice oral antibiotics for penicillin allergy or if flucloxacillin unsuitable	
Clarithromycin	500 mg twice a day for 7 days
Erythromycin (in pregnancy)	500 mg four times a day for 7 days
Doxycycline	200 mg on first day, then 100 mg once a day for 6 days (7-day course in total)
Second choice oral antibiotics if symptoms or signs of infection worsening after 48 hours or no improvement after 7 days (guided by microbiological results when available)	
Co-amoxiclav	500/125 mg three times a day for 7 days
Co-trimoxazole (in penicillin allergy)	960 mg twice a day for 7 days
First choice intravenous antibiotics (if unable to take oral antibiotics or severely unwell; guided by microbiological results when available)[3,4]	
Flucloxacillin ***with or without***	500 mg to 2 g four times a day
Gentamicin ***and/or***	Initially 5 to 7 mg/kg once a day, subsequent doses adjusted according to serum gentamicin concentration[5]
Metronidazole	500 mg three times a day
Co-amoxiclav ***with or without***	1.2 g three times a day
Gentamicin	Initially 5 to 7 mg/kg once a day, subsequent doses adjusted according to serum gentamicin concentration[5]
Co-trimoxazole (in penicillin allergy) ***with or without***	960 mg twice a day (increased to 1.44 g twice a day in severe infection)
Gentamicin ***and/or***	Initially 5 to 7 mg/kg once a day, subsequent doses adjusted according to serum gentamicin concentration[5]
Metronidazole	500 mg three times a day
Second choice intravenous antibiotics (guided by microbiological results when available or following specialist advice)[3, 4]	
Piperacillin with tazobactam	4.5 g three times a day (increased to 4.5 g four times a day if severe infection)
Ceftriaxone ***with or without***	2 g once a day
Metronidazole	500 mg three times a day
Intravenous antibiotics to be added if MRSA infection (combination therapy with intravenous antibiotics listed above)[4]	
Vancomycin	15 to 20 mg/kg two or three times a day (maximum 2 g per dose), adjusted according to serum vancomycin concentration[6]
Linezolid (if vancomycin cannot be used; specialist advice only)	600 mg twice a day

[1]See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breast-feeding, and administering intravenous antibiotics.
[2]Oral doses are for immediate-release medicines.
[3]Give oral antibiotics first line if the person can take oral medicines and the severity of their symptoms does not require intravenous antibiotics.
[4]Review intravenous antibiotics by 48 hours and consider switching to oral antibiotics if possible.
[5]Therapeutic drug monitoring and assessment of renal function is required (BNF, June 2019).
[6]Therapeutic drug monitoring and assessment of renal function is required. A loading dose can be used (see BNF for full dosage information).

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