NICE National Institute for Health and Care Excellence

NICE Pathways

Leg ulcers overview

NICE Pathways bring together everything NICE says on a topic in an interactive flowchart. NICE Pathways are interactive and designed to be used online.

They are updated regularly as new NICE guidance is published. To view the latest version of this NICE Pathway see:

http://pathways.nice.org.uk/pathways/leg-ulcers
NICE Pathway last updated: 27 November 2020

This document contains a single flowchart and uses numbering to link the boxes to the associated recommendations.

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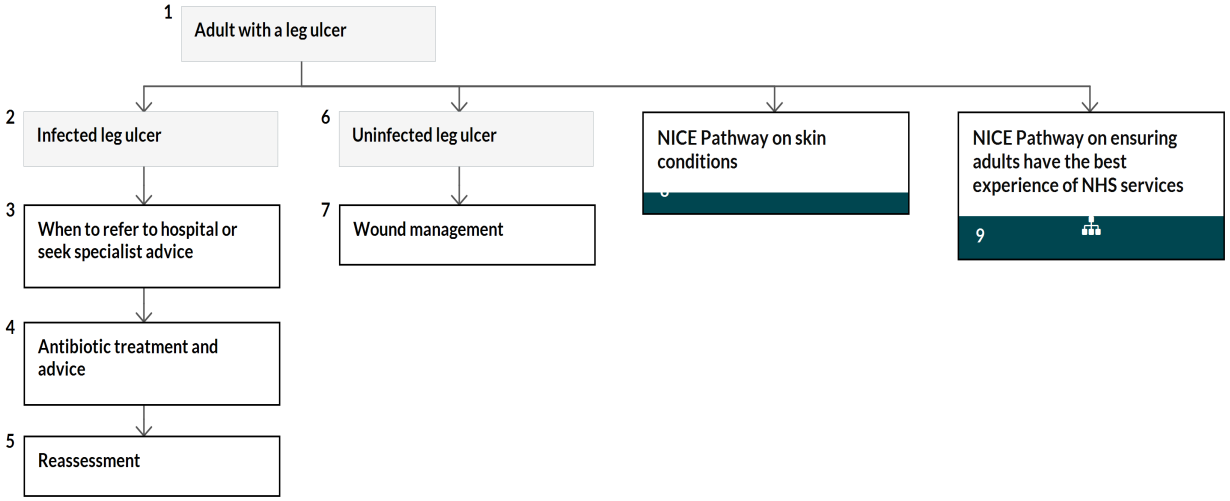

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1 Adult with a leg ulcer

No additional information

2 Infected leg ulcer

No additional information

3 When to refer to hospital or seek specialist advice

Refer adults with an infected leg ulcer to hospital if they have any symptoms or signs suggesting a more serious illness or condition, such as sepsis, necrotising fasciitis [See page 8] or osteomyelitis [See page 8].

Consider referring or seeking specialist advice for adults with an infected leg ulcer if they:

- have a higher risk of complications because of comorbidities, such as diabetes or immunosuppression
- have lymphangitis
- have spreading infection that is not responding to oral antibiotics
- cannot take oral antibiotics (exploring locally available options for giving intravenous or intramuscular antibiotics at home or in the community, rather than in hospital, where appropriate).

NICE has produced a visual summary on antimicrobial prescribing for leg ulcer infection.

NICE has published a clinical knowledge summary on venous leg ulcers. This practical resource is for primary care professionals (it is not formal NICE guidance).

Rationale

See the NICE guideline to find out why we made these recommendations.

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4 Antibiotic treatment and advice

Antibiotic treatment

Be aware that:

- there are many causes of leg ulcers: underlying conditions, such as venous insufficiency and oedema, should be managed to promote healing
- most leg ulcers are not clinically infected but are likely to be colonised with bacteria
- antibiotics do not help to promote healing when a leg ulcer is not clinically infected.

Do not take a sample for microbiological testing from a leg ulcer at initial presentation, even if it might be infected.

Only offer an antibiotic for adults with a leg ulcer when there are symptoms or signs of infection (for example, redness or swelling spreading beyond the ulcer, localised warmth, increased pain or fever). When choosing an antibiotic (see the table on antibiotics for adults aged 18 years and over [See page 8]) take account of:

- the severity of symptoms or signs
- the risk of developing complications
- previous antibiotic use.

Give oral antibiotics if the person can take oral medicines, and the severity of their condition does not require intravenous antibiotics.

If intravenous antibiotics are given, review by 48 hours and consider switching to oral antibiotics if possible.

NICE has produced a visual summary on antimicrobial prescribing for leg ulcer infection.

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See the NICE Pathways on antimicrobial stewardship and medicines optimisation.

Advice

When prescribing antibiotics for an infected leg ulcer in adults, give advice to seek medical help if symptoms or signs of the infection worsen rapidly or significantly at any time, or do not start to

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improve within 2 to 3 days of starting treatment.

NICE has written information for the public on antimicrobial prescribing for leg ulcer infection.

Rationale

See the NICE guideline to find out why we made these recommendations.

5 Reassessment

Reassess an infected leg ulcer in adults if:

- symptoms or signs of the infection worsen rapidly or significantly at any time, or do not start to improve within 2 to 3 days
- the person becomes systemically unwell or has severe pain out of proportion to the infection.

When reassessing an infected leg ulcer in adults, take account of previous antibiotic use, which may have led to resistant bacteria.

Be aware that it will take some time for a leg ulcer infection to resolve, with full resolution not expected until after the antibiotic course is completed.

Consider sending a sample from the leg ulcer (after cleaning) for microbiological testing if symptoms or signs of the infection are worsening or have not improved as expected.

When microbiological results are available:

- review the choice of antibiotic(s), **and**
- change the antibiotic(s) according to results if symptoms or signs of the infection are not improving, using a narrow spectrum antibiotic if possible.

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NICE has published a clinical knowledge summary on venous leg ulcers. This practical resource is for primary care professionals (it is not formal NICE guidance).

Rationale

See the NICE guideline to find out why we made these recommendations.

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6 Uninfected leg ulcer

No additional information

7 Wound management

NICE has published a clinical knowledge summary on venous leg ulcers. This practical resource is for primary care professionals (it is not formal NICE guidance).

UrgoStart

The following recommendations are from NICE medical technologies guidance on UrgoStart for treating diabetic foot ulcers and leg ulcers.

Evidence supports the case for adopting UrgoStart dressings to treat diabetic foot ulcers and venous leg ulcers in the NHS, because they are associated with increased wound healing compared with non-interactive dressings.

UrgoStart dressings should therefore be considered as an option for people with diabetic foot ulcers or venous leg ulcers after any modifiable factors such as infection have been treated.

Cost modelling shows that, compared with standard care, using UrgoStart dressings to treat diabetic foot ulcers is associated with a cost saving of £342 per patient after 1 year. It also shows that UrgoStart is likely to be cost saving for treating venous leg ulcers, but the robustness of this conclusion is less certain from the evidence available. For both types of ulcers, potential cost savings mainly come from better healing with UrgoStart dressings. If 25% of people having treatment for diabetic foot ulcers use UrgoStart instead of a non-interactive dressing, the NHS may save up to £5.4 million each year. For more details, see NICE's resource impact report.

For people with non-venous leg ulcers, there is insufficient evidence to support routine adoption.

Other wound management products

NICE has published medtech innovation briefings on:

- Prontosan for acute and chronic wounds
- NATROX oxygen wound therapy for managing diabetic foot ulcers and complex or chronic non-healing wounds.

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- Coban 2 for venous leg ulcers
- the Juxta CURES adjustable compression system for treating venous leg ulcers.

Also see wound management in the NICE Pathway on skin conditions.

8 NICE Pathway on skin conditions

See Skin conditions

9 NICE Pathway on ensuring adults have the best experience of NHS services

See Patient experience in adult NHS services

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This is a rare but serious bacterial infection that affects the tissue beneath the skin and surrounding muscles and organs (fascia). Early symptoms can include intense pain that is out of proportion to any damage to the skin, and fever. The most common cause is group A Streptococcus.

This is an infection of the bone. It can be very painful and most commonly occurs in the long bones of the leg. It can also occur in other bones, such as those in the back or arms. Anyone can develop osteomyelitis, but certain people are more at risk, including people with diabetes and those with a weakened immune system.

Antibiotics for adults aged 18 years and over with an infected leg ulcer

When prescribing antibiotics for an infected leg ulcer in adults aged 18 years and over, follow the recommendations below.

Antibiotic	Dosage and course length
First-choice oral antibiotic	
Flucloxacillin	500 mg to 1 g four times a day for 7 days (In February 2020, 1 g four times a day was off label. See prescribing medicines at NICE website.)
Alternative first-choice oral antibiotics for penicillin allergy or if flucloxacillin unsuitable	
Doxycycline	200 mg on first day, then 100 mg once a day (can be increased to 200 mg daily) for 7 days in total
Clarithromycin	500 mg twice a day for 7 days
Erythromycin (in pregnancy)	500 mg four times a day for 7 days

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Second-choice oral antibiotics (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 (In February 2020, co-trimoxazole was off label for leg ulcer infection. See prescribing medicines at NICE website. See the BNF for information on monitoring.)
First-choice antibiotics if severely unwell (guided by microbiological results if available)	
Flucloxacillin **with or without**	1 g to 2 g four times a day intravenously
Gentamicin **and/or**	Initially, 5 mg/kg to 7 mg/kg once daily intravenously, subsequent doses if needed according to serum gentamicin concentration (see the BNF for information on monitoring)
Metronidazole	400 mg three times a day orally or 500 mg three times a day intravenously
Co-amoxiclav **with or without**	1.2 g three times a day intravenously
Gentamicin	Initially 5 mg/kg to 7 mg/kg once daily intravenously, subsequent doses if needed according to serum gentamicin concentration (see the BNF for information on monitoring)
Co-trimoxazole (in penicillin allergy) **with or without**	960 mg twice a day intravenously (increased to 1.44 g twice a day if severe infection) (In February 2020, co-trimoxazole was off label for leg ulcer infection. See prescribing medicines at NICE website. See the BNF for information on monitoring.)

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Gentamicin **and/or**	Initially 5 mg/kg to 7 mg/kg once daily intravenously, subsequent doses if needed according to serum gentamicin concentration (see the BNF for information on monitoring)
Metronidazole	400 mg three times a day orally or 500 mg three times a day intravenously
Second-choice antibiotics if severely unwell (guided by microbiological results when available or following specialist advice)	
Piperacillin with tazobactam	4.5 g three times a day intravenously (increased to 4.5 g four times a day if severe infection)
Ceftriaxone **with or without**	2 g once a day intravenously
Metronidazole	400 mg three times a day orally or 500 mg three times a day intravenously
Antibiotics to be added if MRSA **infection is suspected or confirmed (combination therapy with antibiotics listed above)**	
Vancomycin	15 mg/kg to 20 mg/kg two or three times a day intravenously (maximum 2 g per dose), adjusted according to serum vancomycin concentration (see the BNF for information on monitoring)
Teicoplanin	Initially 6 mg/kg every 12 hours for three doses, then 6 mg/kg once a day intravenously (see the BNF for information on monitoring)
Linezolid (if vancomycin or teicoplanin cannot be	600 mg twice a day orally or intravenously (see the BNF for information on monitoring)

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used; specialist advice only)	

See the BNF for appropriate use and dosing in specific populations, for example, people with hepatic or renal impairment, in pregnancy and breastfeeding, and when administering intravenous (or, where appropriate, intramuscular) antibiotics.

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

See the NICE guideline to find out why we made these recommendations.

Glossary

Leg ulcer

(a long-lasting [chronic] open wound that takes more than 4 to 6 weeks to heal; they usually develop on the lower leg, between the shin and the ankle)

Leg ulcers

(long-lasting [chronic] open wounds that take more than 4 to 6 weeks to heal; they usually develop on the lower leg, between the shin and the ankle)

Sources

Leg ulcer infection: antimicrobial prescribing (2020) NICE guideline NG152

UrgoStart for treating diabetic foot ulcers and leg ulcers (2019) NICE medical technologies guidance 42

Your responsibility

Guidelines

The recommendations in this guideline represent the view of NICE, arrived at after careful

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consideration of the evidence available. 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.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Technology appraisals

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, health professionals are expected to take these recommendations fully into account, alongside the individual needs, preferences and values of their patients. The application of the recommendations in this interactive flowchart is at the discretion of health professionals and their individual patients and do not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

Commissioners and/or providers have a responsibility to provide the funding required to enable the recommendations to be applied when individual health professionals and their patients wish to use it, in accordance with the NHS Constitution. They should do so in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of

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implementing NICE recommendations wherever possible.

Medical technologies guidance, diagnostics guidance and interventional procedures guidance

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take these recommendations fully into account. However, the interactive flowchart does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Commissioners and/or providers have a responsibility to implement the recommendations, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this interactive flowchart should be interpreted in a way that would be inconsistent with compliance with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

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