

Managing intermittent claudication in people with peripheral arterial disease

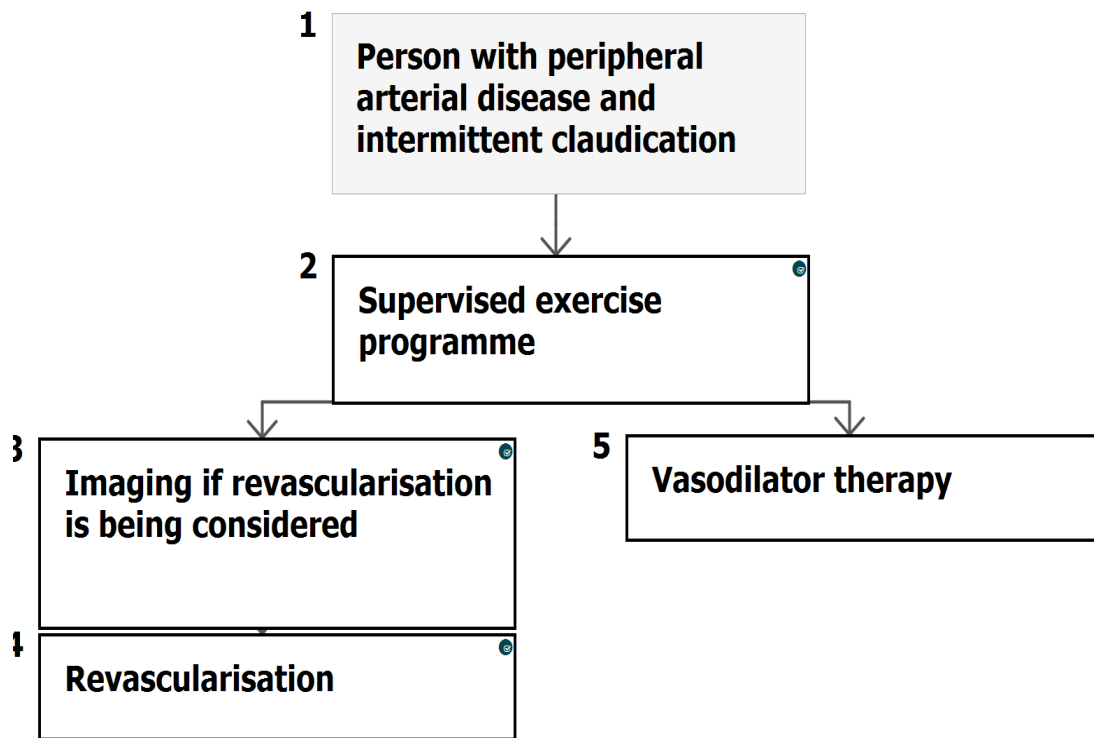
NICE Pathways bring together everything NICE says on a topic in an interactive flowchart. NICE Pathways are interactive and designed to be used online.

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/lower-limb-peripheral-arterial-disease>

NICE Pathway last updated: 24 April 2019

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



1 Person with peripheral arterial disease and intermittent claudication

No additional information

2 Supervised exercise programme

Offer a supervised exercise programme to all people with intermittent claudication.

Consider providing a supervised exercise programme for people with intermittent claudication which involves:

- 2 hours of supervised exercise a week for a 3-month period
- encouraging people to exercise to the point of maximal pain.

Quality standards

The following quality statement is relevant to this part of the interactive flowchart.

3. Supervised exercise programmes

3 Imaging if revascularisation is being considered

Offer duplex ultrasound as first-line imaging to all people with peripheral arterial disease for whom revascularisation is being considered.

Offer contrast-enhanced magnetic resonance angiography to people with peripheral arterial disease who need further imaging (after duplex ultrasound) before considering revascularisation.

Offer computed tomography angiography to people with peripheral arterial disease who need further imaging (after duplex ultrasound) if contrast-enhanced magnetic resonance angiography is contraindicated or not tolerated.

Quality standards

The following quality statement is relevant to this part of the interactive flowchart.

4. Imaging

4 Revascularisation

Angioplasty and stenting

Offer angioplasty for treating people with intermittent claudication only when:

- advice on the benefits of modifying risk factors has been reinforced (see [secondary prevention of cardiovascular disease](#)) **and**
- a supervised exercise programme has not led to a satisfactory improvement in symptoms **and**
- imaging has confirmed that angioplasty is suitable for the person.

Do not offer primary stent placement for treating people with intermittent claudication caused by aorto-iliac disease (except complete occlusion) or femoro-popliteal disease.

Consider primary stent placement for treating people with intermittent claudication caused by complete aorto-iliac occlusion (rather than stenosis).

Use bare metal stents when stenting is used for treating people with intermittent claudication.

Bypass surgery and graft types

Offer bypass surgery for treating people with severe lifestyle-limiting intermittent claudication only when:

- angioplasty has been unsuccessful or is unsuitable **and**
- imaging has confirmed that bypass surgery is appropriate for the person.

Use an autologous vein whenever possible for people with intermittent claudication having infra-inguinal bypass surgery.

Interventional procedures

NICE has published guidance on [percutaneous laser atherectomy as an adjunct to balloon angioplasty \(with or without stenting\) for peripheral arterial disease](#) with **normal arrangements** for clinical governance, consent and audit.

NICE has published guidance on the following procedures with **special arrangements** for clinical governance, consent and audit or research:

- [percutaneous atherectomy of femoropopliteal arterial lesions with plaque excision devices](#)

- [endovascular stent-grafting of popliteal aneurysms](#).

Medtech innovation briefings

NICE has published medtech innovation briefings on:

- [Lutonix drug-coated balloon for peripheral arterial disease](#)
- [PROPATEN heparin-bonded vascular graft for peripheral arterial disease](#)
- [Spiral Flow peripheral vascular graft for treating peripheral arterial disease](#).

'Depth of anaesthesia' monitors

The following recommendations are from NICE diagnostics guidance on [depth of anaesthesia monitors](#).

The use of EEG-based depth of anaesthesia monitors is recommended as an option during any type of general anaesthesia in patients considered at higher risk of adverse outcomes. This includes patients at higher risk of unintended awareness and patients at higher risk of excessively deep anaesthesia. The BIS depth of anaesthesia monitor is therefore recommended as an option in these patients.

The use of EEG-based depth of anaesthesia monitors is also recommended as an option in all patients receiving total intravenous anaesthesia. The BIS monitor is therefore recommended as an option in these patients.

Although there is greater uncertainty of clinical benefit for the E-Entropy and Narcotrend-Compact M depth of anaesthesia monitors than for the BIS monitor, the Committee concluded that the E-Entropy and Narcotrend-Compact M monitors are broadly equivalent to BIS. These monitors are therefore recommended as options during any type of general anaesthesia in patients considered at higher risk of adverse outcomes. This includes patients at higher risk of unintended awareness and patients at higher risk of excessively deep anaesthesia. The E-Entropy and Narcotrend-Compact M monitors are also recommended as options in patients receiving total intravenous anaesthesia.

Anaesthetists using EEG-based depth of anaesthesia monitors should have appropriate training and experience with these monitors and understand the potential limitations of their use in clinical practice.

NICE has published a medtech innovation briefing on [End-tidal Control software for use with Aisys closed circuit anaesthesia systems for automated gas control during general anaesthesia](#).

Quality standards

The following quality statement is relevant to this part of the interactive flowchart.

5. Angioplasty for intermittent claudication

5 Vasodilator therapy

Consider naftidrofuryl oxalate for treating people with intermittent claudication, starting with the least costly preparation, only when:

- supervised exercise has not led to satisfactory improvement **and**
- the person prefers not to be referred for consideration of angioplasty or bypass surgery.

Review progress after 3-6 months and discontinue naftidrofuryl oxalate if there has been no symptomatic benefit.

Cilostazol, naftidrofuryl oxalate, pentoxifylline and inositol nicotinate

The following recommendations are from NICE technology appraisal guidance on [cilostazol, naftidrofuryl oxalate, pentoxifylline and inositol nicotinate for the treatment of intermittent claudication in people with peripheral arterial disease](#).

Naftidrofuryl oxalate is recommended as an option for the treatment of intermittent claudication in people with peripheral arterial disease for whom vasodilator therapy is considered appropriate after taking into account other treatment options. Treatment with naftidrofuryl oxalate should be started with the least costly licensed preparation.

Cilostazol, pentoxifylline and inositol nicotinate are not recommended for the treatment of intermittent claudication in people with peripheral arterial disease.

People currently receiving cilostazol, pentoxifylline and inositol nicotinate should have the option to continue treatment until they and their clinicians consider it appropriate to stop.

NICE has written information for the public on [cilostazol, naftidrofuryl oxalate, pentoxifylline and inositol nicotinate](#).

Ramipril

NICE has published an evidence summary on [symptoms of peripheral arterial disease: ramipril](#).

BIS

Bispectral Index

EEG

electroencephalography

Sources

[Peripheral arterial disease: diagnosis and management \(2012 updated 2018\) NICE guideline CG147](#)

[Cilostazol, naftidrofuryl oxalate, pentoxifylline and inositol nicotinate for the treatment of intermittent claudication in people with peripheral arterial disease \(2011\) NICE technology appraisal guidance 223](#)

[Depth of anaesthesia monitors - Bispectral Index \(BIS\), E-Entropy and Narcotrend-Compact M \(2012\) NICE diagnostics guidance 6](#)

Your responsibility

Guidelines

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