NICE National Institute for Health and Care Excellence

NICE quality standard

Peripheral arterial disease

Quality standard

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This standard is based on CG147.

This standard should be read in conjunction with QS6, QS15, QS28, QS43, QS89, QS92, QS100 and QS99.

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Quality statement 1: Identification and assessment of peripheral arterial disease

Quality statement

People who have symptoms of, or who are at risk of developing, peripheral arterial disease (PAD) are offered a clinical assessment and ankle brachial pressure index (ABPI) measurement.

Rationale

Early identification of both asymptomatic and symptomatic PAD means that treatment can begin earlier, potentially slowing disease progression and improving quality of life through better mobility and reduced pain. Early identification and treatment of PAD and its risk factors may also reduce the risk of cardiovascular morbidity and mortality, and the need for lower limb amputation. A comprehensive assessment should include both a clinical assessment with structured history taking, and ABPI measurement with a hand-held doppler ultrasound scan to ensure an accurate diagnosis and quantification of disease severity.

Quality measures

Structure

(a) Evidence of local arrangements to ensure that health and social care practitioners receive training to recognise the symptoms of PAD.

Data source: Local data collection.

(b) Evidence of local arrangements to ensure that people who have symptoms of, or who are at risk of developing, PAD are offered a clinical assessment and ABPI measurement.

Data source: Local data collection.

(c) Evidence of local arrangements to ensure that all healthcare practitioners undertaking hand-held doppler ultrasound assessment of ABPI are appropriately trained.

Data source: Local data collection.

Process

(a) Proportion of people who have symptoms of PAD who receive a clinical assessment and ABPI measurement.

Numerator: the number of people in the denominator receiving a clinical assessment and ABPI measurement.

Denominator: the number of people who have symptoms of PAD.

Data source: Local data collection.

(b) Proportion of people who are at risk of developing PAD who receive a clinical assessment and ABPI measurement.

Numerator: the number of people in the denominator receiving a clinical assessment and ABPI measurement.

Denominator: the number of people at risk of developing PAD.

Data source: Local data collection.

Outcome

Disease severity at diagnosis.

Data source: Local data collection.

What the quality statement means for different audiences

Service providers ensure that hand-held doppler ultrasounds are adequately available;

that staff are trained to recognise the symptoms of PAD; and that people who have symptoms of PAD or who are at risk of developing it are offered a clinical assessment and ABPI measurement.

Health and social care practitioners ensure that they are aware of the symptoms of PAD and the need to have these symptoms assessed; that they are aware of the risk factors for PAD; and that healthcare practitioners ensure that they offer a clinical assessment and ABPI measurement to people who have symptoms of PAD or who are at risk of developing it.

Commissioners ensure that they commission services that have an adequate supply of hand-held doppler ultrasounds, and have staff trained to carry out clinical assessments and ABPI measurements in people who have symptoms of PAD or who are at risk of developing it.

People with possible peripheral arterial disease, and people who are at risk of developing peripheral arterial disease receive a thorough assessment to find out whether or not they have it, in which they are asked about their symptoms, their legs and feet are examined, their pulses are checked, and the blood pressures in their arms and ankles are compared.

Source guidance

Peripheral arterial disease: diagnosis and management. NICE guideline CG147 (2012, updated 2020), recommendations 1.3.1 and 1.3.2

Definitions of terms used in this quality statement

Symptoms of PAD

Symptoms include:

- non-healing wounds on the legs or feet
- unexplained leg pain

- pain in the leg when walking that resolves when stopping (intermittent claudication), pain in the foot at rest, often made worse by elevation (for example, in bed at night disturbing sleep and relieved by hanging the foot down)
- tissue loss (ulceration or gangrene).

[Adapted from NICE's guideline on peripheral arterial disease]

People at risk of PAD

These include people who:

- have diabetes **or**
- are being considered for interventions to the leg or foot (for example, podiatric and orthopaedic foot surgery and chiropody) **or**
- need to use compression hosiery.

[Adapted from NICE's guideline on peripheral arterial disease, recommendation 1.3.1]

Clinical assessment

This should include:

- asking about the presence and severity of possible symptoms of intermittent claudication and critical limb ischaemia using a structured questionnaire
- examining the legs and feet for evidence of critical limb ischaemia, for example, tissue loss (ulceration and/or gangrene)
- examining the femoral, popliteal and foot pulses.

[Adapted from NICE's guideline on peripheral arterial disease, recommendation 1.3.2]

ABPI measurement

Recommendation 1.3.3 in NICE's guideline on peripheral arterial disease provides guidance on how this should be done.

Quality statement 2: Comorbidity assessment

Quality statement

People with peripheral arterial disease (PAD) are offered an assessment for cardiovascular comorbidities and modifiable risk factors.

Rationale

People with both asymptomatic and symptomatic PAD have an increased risk of mortality from cardiovascular disease, mainly due to heart attack and stroke. It is therefore important to assess people with PAD for other cardiovascular comorbidities and modifiable risk factors, so that appropriate evidence-based treatment, advice and support can be given to reduce this risk.

Quality measures

Structure

Evidence of local arrangements to ensure that people with PAD are offered an assessment of cardiovascular comorbidities and modifiable risk factors.

Data source: Local data collection.

Process

Proportion of people with PAD who receive an assessment of cardiovascular comorbidities and modifiable risk factors.

Numerator: the number of people in the denominator receiving an assessment of cardiovascular comorbidities and modifiable risk factors.

Denominator: the number of people with PAD.

Data source: Local data collection. Data on the percentage of patients with PAD in whom the last blood pressure reading (measured in the preceding 12 months) is 150/90 mmHg or less, the percentage of patients with PAD in whom the last measured total cholesterol (measured in the preceding 12 months) is 5 mmol/l or less, and the percentage of patients with PAD with a record in the preceding 12 months that aspirin or an alternative antiplatelet is being taken, are available in the Quality and Outcomes Framework (QOF) indicators PAD002, PAD003 and PAD004.

What the quality statement means for different audiences

Service providers ensure that staff are trained to carry out assessments for cardiovascular comorbidities and modifiable risk factors.

Healthcare practitioners ensure that they offer people with PAD an assessment for cardiovascular comorbidities and modifiable risk factors.

Commissioners ensure that they commission services so that staff are trained on how to assess for cardiovascular comorbidities and modifiable risk factors.

People with peripheral arterial disease are offered an assessment to check their risk of having a heart attack or a stroke, and identify any lifestyle factors that they can alter to reduce their risk (for example, eating healthily, reducing alcohol consumption, stopping smoking, maintaining a healthy weight and exercising regularly).

Source guidance

Peripheral arterial disease: diagnosis and management. NICE guideline CG147 (2012, updated 2020), recommendation 1.2.1

Definitions of terms used in this quality statement

Assessment of cardiovascular comorbidities and modifiable risk

factors

This should include a review of:

- smoking status
- diet
- weight
- cholesterol levels
- presence of diabetes
- presence of hypertension
- current antiplatelet therapy.

[Adapted from NICE's guideline on peripheral arterial disease, recommendation 1.2.1]

Quality statement 3: Supervised exercise programmes

Quality statement

People with intermittent claudication are offered a supervised exercise programme.

Rationale

Supervised exercise programmes can improve walking distance and quality of life for people with intermittent claudication. However, the provision of services varies across the country and so there is a need for both new provision and improvement in existing care.

Quality measures

Structure

Evidence of local arrangements to ensure the availability of supervised exercise programmes.

Data source: Local data collection.

Process

(a) Proportion of people with intermittent claudication who are offered a supervised exercise programme.

Numerator: the number of people in the denominator offered a supervised exercise programme.

Denominator: the number of people with intermittent claudication.

Data source: Local data collection.

(b) Proportion of people with intermittent claudication who start a supervised exercise programme.

Numerator: the number of people in the denominator starting a supervised exercise programme.

Denominator: the number of people with intermittent claudication offered a supervised exercise programme.

Data source: Local data collection.

(c) Proportion of people with intermittent claudication who complete a supervised exercise programme.

Numerator: the number of people in the denominator completing a supervised exercise programme.

Denominator: the number of people with intermittent claudication who start a supervised exercise programme.

Data source: Local data collection.

Outcome

(a) Improvement in pain-free walking distance.

Data source: Local data collection.

(b) Improvement in health-related quality of life.

Data source: Local data collection.

What the quality statement means for different audiences

Service providers ensure the availability of a supervised exercise programme for all people with intermittent claudication.

Healthcare practitioners ensure that they offer supervised exercise programmes to all people with intermittent claudication.

Commissioners ensure that they commission supervised exercise programmes that can be offered to all people with intermittent claudication.

People who have pain when walking because of poor circulation are offered a supervised exercise programme to gradually build up their pain-free walking distance and improve their quality of life.

Source guidance

Peripheral arterial disease: diagnosis and management. NICE guideline CG147 (2012, updated 2020), recommendation 1.5.1

Definitions of terms used in this quality statement

Intermittent claudication

A walking- or exercise-induced pain in the lower limbs caused by diminished circulation. [NICE's full guideline on peripheral arterial disease]

Supervised exercise programmes

This may involve the following components:

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

[Adapted from NICE's guideline on peripheral arterial disease, recommendation 1.5.2]

Quality statement 4: Imaging

Quality statement

People with peripheral arterial disease (PAD) being considered for revascularisation who need further imaging after a duplex ultrasound are offered magnetic resonance angiography (MRA).

Rationale

Imaging should only be performed in people with PAD if it is likely to provide information that will influence their management. Duplex ultrasound followed by MRA, where clinically appropriate and if needed, offers the most accurate, safe and cost-effective imaging strategy for people with PAD. However, local training and expertise and the availability of imaging equipment may be variable.

Quality measures

Structure

(a) Evidence of local arrangements to ensure that healthcare practitioners undertaking imaging are appropriately trained in the use of duplex ultrasound and MRA for PAD.

Data source: Local data collection.

(b) Evidence of local arrangements to ensure that people with PAD being considered for revascularisation who need further imaging after a duplex ultrasound are offered MRA.

Data source: Local data collection.

Process

Proportion of people with PAD being considered for revascularisation needing further imaging after a duplex ultrasound who receive MRA.

Numerator: the number of people in the denominator receiving MRA.

Denominator: the number of people with PAD being considered for revascularisation who need further imaging after a duplex ultrasound.

Data source: Local data collection.

What the quality statement means for different audiences

Service providers ensure that imaging equipment is adequately available, and that people with PAD who are being considered for revascularisation and need further imaging after a duplex ultrasound are offered MRA.

Healthcare practitioners ensure that they offer MRA to people with PAD who are being considered for revascularisation who need further imaging after a duplex ultrasound imaging.

Commissioners ensure that they commission services with adequate availability of imaging equipment and which offer MRA to people with PAD being considered for revascularisation who need further imaging after a duplex ultrasound.

People with peripheral arterial disease whose healthcare practitioner thinks surgery might help to improve their blood flow, are offered imaging tests (for example, an ultrasound) to see whether surgery would be suitable.

Source guidance

Peripheral arterial disease: diagnosis and management. NICE guideline CG147 (2012, updated 2020), recommendations 1.4.1, 1.4.2 and 1.4.3

Definitions of terms used in this quality statement

Revascularisation

Any procedure that is used to restore blood flow to an area of the body that is supplied by

narrowed or blocked arteries. This can be done either by making the narrowed arteries wider (angioplasty, stenting), or by using another blood vessel to bypass the blocked or narrowed artery (bypass surgery).

[Adapted from NICE's guideline on peripheral arterial disease, information for the public]

People being considered for revascularisation

This includes people:

- with intermittent claudication, who should be offered angioplasty only when:
  - advice on the benefits of modifying risk factors has been reinforced (see recommendation 1.2.1 in NICE's guideline on peripheral arterial 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
- being considered for primary stent placement, for treating people with intermittent claudication caused by complete aorto-iliac occlusion (rather than stenosis)
- with critical limb ischaemia who need revascularisation, who should be offered angioplasty or bypass surgery, taking into account factors including:
  - comorbidities
  - pattern of disease
  - availability of a vein for grafting
  - patient preference
- being considered for primary stent placement, for treating people with critical limb ischaemia caused by complete aorto-iliac occlusion (rather than stenosis).

[Adapted from NICE's guideline on peripheral arterial disease, recommendations 1.5.3, 1.5.5, 1.6.2 and 1.6.4]

Quality statement 5: Angioplasty for intermittent claudication

Quality statement

People with intermittent claudication are offered angioplasty only when imaging has confirmed it is appropriate, after advice on the benefits of modifying risk factors has been given, and after a supervised exercise programme has not improved symptoms.

Rationale

Angioplasty can be used to treat intermittent claudication, but it is an invasive procedure and should only be used after non-invasive options (including reinforcement of the importance of lifestyle changes and participation in supervised exercise programmes) have not improved symptoms, and imaging has confirmed that angioplasty is suitable. Greater use of non-invasive treatments may reduce the need for angioplasty and improve overall outcomes for peripheral arterial disease (PAD).

Quality measures

Structure

Evidence of local arrangements to ensure that people with intermittent claudication are offered angioplasty only when imaging has confirmed it is appropriate, advice on the benefits of modifying risk factors has been given and a supervised exercise programme has not improved symptoms.

Data source: Local data collection.

Process

Proportion of people with intermittent claudication receiving angioplasty who have had imaging to confirm angioplasty is appropriate, received advice on the benefits of

modifying risk factors and undergone a supervised exercise programme that did not improve symptoms.

Numerator: the number of people in the denominator who have had imaging to confirm angioplasty is appropriate, received advice on the benefits of modifying risk factors and undergone supervised exercise programme that did not improve symptoms.

Denominator: the number of people with intermittent claudication who receive angioplasty.

Data source: Local data collection.

What the quality statement means for different audiences

Service providers ensure that supervised exercise programmes are adequately available and have local protocols in place to ensure healthcare practitioners only offer angioplasty to people with intermittent claudication when imaging has confirmed it is appropriate, advice on the benefits of modifying risk factors has been given and a supervised exercise programme has not improved symptoms.

Healthcare practitioners ensure that they offer angioplasty to people with intermittent claudication only when imaging has confirmed it is appropriate, advice on the benefits of modifying risk factors has been given and a supervised exercise programme has not improved symptoms.

Commissioners ensure that they commission services in which people with intermittent claudication are only offered angioplasty when imaging has confirmed it is appropriate, advice on the benefits of modifying risk factors has been given and a supervised exercise programme has not improved symptoms.

People who have pain when walking because of poor circulation are offered angioplasty (a procedure in which a small balloon is inserted into the narrowed artery and inflated to widen the artery) only when an imaging test has confirmed that angioplasty is suitable, and advice on the risk factors of peripheral arterial disease and a supervised exercise programme have not improved symptoms.

Source guidance

Peripheral arterial disease: diagnosis and management. NICE guideline CG147 (2012, updated 2020), recommendation 1.5.3

Definitions of terms used in this quality statement

Intermittent claudication

A walking- or exercise-induced pain in the lower limbs caused by diminished circulation. [NICE's full guideline on peripheral arterial disease]

About this quality standard

NICE quality standards describe high-priority areas for quality improvement in a defined care or service area. Each standard consists of a prioritised set of specific, concise and measurable statements. NICE quality standards draw on existing NICE or NICE-accredited guidance that provides an underpinning, comprehensive set of recommendations, and are designed to support the measurement of improvement.

Expected levels of achievement for quality measures are not specified. Quality standards are intended to drive up the quality of care, and so achievement levels of 100% should be aspired to (or 0% if the quality statement states that something should not be done). However, this may not always be appropriate in practice. Taking account of safety, shared decision-making, choice and professional judgement, desired levels of achievement should be defined locally.

Information about how NICE quality standards are developed is available from the NICE website.

See our webpage on quality standards advisory committees for details about our standing committees. Information about the topic experts invited to join the standing members is available from the webpage for this quality standard.

NICE has produced a quality standard service improvement template to help providers make an initial assessment of their service compared with a selection of quality statements. This tool is updated monthly to include new quality standards.

NICE guidance and quality standards apply in England and Wales. Decisions on how they apply in Scotland and Northern Ireland are made by the Scottish government and Northern Ireland Executive. NICE quality standards may include references to organisations or people responsible for commissioning or providing care that may be relevant only to England.

Resource impact

NICE quality standards should be achievable by local services. The potential resource impact is considered by the quality standards advisory committee, drawing on resource

impact work for the source guidance. Organisations are encouraged to use the resource impact statement for NICE's guideline on peripheral arterial disease to help estimate local costs.

Diversity, equality and language

Equality issues were considered during development and equality assessments for this quality standard are available. Any specific issues identified during development of the quality statements are highlighted in each statement.

Commissioners and providers should aim to achieve the quality standard 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 quality standard should be interpreted in a way that would be inconsistent with compliance with those duties.

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Endorsing organisation

This quality standard has been endorsed by NHS England, as required by the Health and Social Care Act (2012)

Supporting organisations

Many organisations share NICE's commitment to quality improvement using evidence-based guidance. The following supporting organisations have recognised the benefit of the quality standard in improving care for patients, carers, service users and members of the public. They have agreed to work with NICE to ensure that those commissioning or providing services are made aware of and encouraged to use the quality standard.

- Foot In Diabetes UK
- Royal College of Podiatry
- Royal College of General Practitioners (RCGP)
- Royal College of Nursing (RCN)
- Royal College of Surgeons of Edinburgh
- Society of Vascular Nurses

- Vascular Society