1 Introduction

Implementing the recommendations from NICE guidance and other NICE-accredited guidance is the best way to support improvements in the quality of care or services, in line with the statements and measures that comprise the NICE quality standards. This report:

- Highlights the key actions that clinical commissioning groups (CCGs), NHS England area teams, local authorities and their partners should take to improve the quality of care for people with peripheral arterial disease. Priority actions are outlined in table 1.
- Identifies opportunities for collaboration and integration at a local and regional level.
- Identifies the benefits and potential costs or savings from implementing the changes needed to achieve quality improvement.
- Directs commissioners and service providers to other tools that can help them implement NICE and NICE accredited guidance.

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. The statements draw on existing guidance, which provides an underpinning, comprehensive set of recommendations, and are designed to support the measurement of improvement. For more information see NICE quality standards.
NHS England's CCG outcomes indicator set is part of a systematic approach to promoting quality improvement. The outcomes indicator set provides clinical commissioning groups (CCGs) and health and wellbeing boards with comparative information on the quality of health services commissioned by CCGs and the associated health outcomes. The set includes indicators derived from NICE quality standards. By commissioning services in line with the quality standards, commissioners can contribute to improvements in health outcomes, particularly in reducing mortality from cardiovascular disease for people aged under 75 years.

Commissioners can use the quality standards to improve services by including quality statements and measures in the service specification of the standard contract and establishing key performance indicators as part of tendering. They can also encourage improvements in provider performance by using quality standard measures in association with incentive payments such as the Commissioning for quality and innovation (CQUIN) 2013/14 guidance. NICE quality standards provide a baseline against which improvements can be measured and rewarded, enabling commissioners to address gaps in service provision, support best practice and encourage evidence-based treatment and care.

This report on the peripheral arterial disease quality standard should be read alongside:

- **Peripheral arterial disease.** NICE quality standard 52 (2014).
- **Commissioning cardiac rehabilitation services.** NICE guide for commissioners (updated 2013).
- **Lower limb peripheral arterial disease.** NICE clinical guideline 147 (2012).
- **Services for the prevention of cardiovascular disease.** NICE guide for commissioners (updated 2012).
Overview of peripheral arterial disease

Peripheral arterial disease (PAD) is a condition in which the arteries that carry blood to the limbs are narrowed or blocked by a build-up of fatty deposits (called atheroma).

The most common initial symptom of PAD is leg pain (usually in the calf) while walking. This is known as intermittent claudication. Smoking is the most important risk factor for PAD; other risk factors include diabetes, high cholesterol and high blood pressure.

PAD is a marker for an increased risk (3–4 fold) of other cardiovascular morbidity and mortality (heart attack and ischaemic stroke), even if it is asymptomatic. In its more severe manifestations, PAD may lead to a condition called critical limb ischaemia that in turn can progress to severe intractable pain, ulceration and gangrene. People with critical limb ischaemia are at significant risk of developing irreversible ischaemic damage to the leg or foot if they do not receive appropriate treatment and this may lead to the need for amputation.

Overall, approximately 1–2% of people with intermittent claudication will eventually undergo amputation, making PAD the largest single cause of lower limb amputation in the UK. This highlights the importance of early identification and assessment of the condition. Mild symptoms are generally managed in primary care, with referral to secondary care when symptoms do not improve or deteriorate.

The Cardiovascular Disease Outcomes Strategy notes that health and care services should be integrated, so that cardiovascular conditions are addressed together and people are treated as individuals rather than as a series of diseases. Collaboration between hospitals, primary care and social care needs to be directed towards improving recovery from acute cardiovascular conditions (such as stroke and heart attack), delivering appropriate longer-term care for people with multiple morbidities from cardiovascular disease, and enabling people to maintain their independence and wellbeing.
To achieve this, commissioning for PAD should be well integrated into local and regional commissioning plans for the prevention and management of cardiovascular disease (see the NICE commissioning guide for prevention of cardiovascular disease). CCGs, NHS England area teams and local authorities should work closely together to commission all elements of the care pathway for people with PAD. Health and Wellbeing Boards and regional Strategic Clinical Networks for cardiovascular disease will also play a vital role in supporting quality improvement and coordinating local and regional services for people with PAD.

Commissioners should take into account the NHS Standard Contract for Specialised Vascular Services, which describes the reconfiguration of vascular services (including for lower limb ischemia) into fewer- and higher-volume units for elective and emergency procedures.

The Quality Outcomes Framework (QOF) indicators – PAD001–PAD004 look at improving the quality of identification and management of cardiovascular risk factors for patients with a diagnosis of PAD. The indicator details are given in Appendix A.

The management of PAD is subject to variation in practice. However, earlier diagnosis and improved management of PAD should reduce cardiovascular mortality and morbidity, leading to a reduction in the number of lower limb amputations, together with associated cost savings.

### 2.1 Epidemiology of peripheral arterial disease

The incidence of PAD increases with age, and it is estimated that about 20% of people over 60 years have some form of PAD.

In most people with intermittent claudication the symptoms remain stable, but approximately 10–20% may develop increasingly severe symptoms and 5–10% may develop critical limb ischaemia. Overall, approximately 1–2% of people with intermittent claudication will eventually undergo lower limb amputation, although the risk is higher (about 5%) in people with diabetes.
People with diabetes have an increased risk (3–4 fold) of intermittent claudication. In addition, diabetes is associated with a more rapid progression of intermittent claudication\(^1\). Around 54% of people with PAD also have a diagnosis of diabetes\(^2\). Commissioners need to ensure that pathways for PAD and diabetes are closely aligned.

3 Summary of commissioning and resource implications

The cost of meeting the quality standard for peripheral arterial disease depends on current local practice and the progress organisations have made in implementing NICE and NICE-accredited guidance.

Table 1 summarises the priority commissioning actions and potential resource implications for commissioners working towards achieving this quality standard. See section 4 for more detail on commissioning and resource implications.

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\(^2\) Prevalence data, based on the ICD-10 definition of peripheral arterial disease, were taken from the IMS Disease Analyzer (Health and Social Care Information Centre; unpublished data 2012), which collects data from a sample of GP practice systems. Around 100 are currently delivering data and the database has about 2.7 million patient records, around 0.85 million of which were registered for the whole of the study year (2011/12).
### Table 1 Priority commissioning actions and potential resource implications for peripheral arterial disease

<table>
<thead>
<tr>
<th>Quality improvement area</th>
<th>Commissioning implications</th>
<th>Resource implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification and assessment of peripheral arterial disease</td>
<td>NHS England area teams should ensure that all GP practices can offer clinical assessment of peripheral arterial disease (PAD).</td>
<td>Early identification and appropriate intervention may stop the disease progressing, thus preventing cardiovascular events and lower limb amputation and thus avoid costs in the future. Appropriate assessment of PAD in primary care may reduce referrals to secondary care.</td>
</tr>
<tr>
<td>(statement 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comorbidity assessment (statement 2)</td>
<td>NHS England area teams should ensure that all GP practices assess people with PAD for cardiovascular morbidities. NHS England area teams should work with local authorities and CCGs to ensure that GP practices can offer people appropriate treatment, brief lifestyle advice and refer directly to appropriate evidence-based lifestyle interventions (including supervised exercise programmes).</td>
<td>Achieving this quality statement may help reduce the number of cardiovascular events and lower limb amputations, with associated savings.</td>
</tr>
<tr>
<td>Supervised exercise programmes (statement 3)</td>
<td>CCGs should commission supervised exercise programmes for people with PAD, ensuring sufficient capacity to meet local need.</td>
<td>Because of the lack of provision of supervised exercise programmes specifically for PAD, there may be costs in achieving this quality statement, depending on current local practice. Supervised exercise programmes for PAD could be provided as part of existing cardiovascular rehabilitation programmes, or set up at an estimated cost of £255 per person.</td>
</tr>
<tr>
<td>Imaging (statement 4)</td>
<td>CCGs should ensure there is local access to duplex ultrasound and magnetic resonance angiography provided by appropriately</td>
<td>There may be costs for training radiology staff to improve the quality of imaging, depending on current local practice.</td>
</tr>
</tbody>
</table>

NICE support for commissioning for peripheral arterial disease 6 of 16
4 Commissioning and resource implications

This section considers the commissioning implications and potential resource impact of implementing the recommendations to achieve the NICE quality standard for peripheral arterial disease.

4.1 Identification and assessment of peripheral arterial disease

Quality statement 1: Identification and assessment of peripheral arterial disease

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.

NHS England area teams and strategic clinical networks for cardiovascular disease, should work with CCGs and local authorities to ensure that health and social care practitioners are able to recognise symptoms suggestive of PAD, especially in the groups of people who have symptoms of, or are at risk of developing, PAD (see the definitions of terms for statement 1 in the quality standard). This should lead to earlier assessment and diagnosis. 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.

NHS England area teams should seek assurance that there are sufficient appropriately trained healthcare professionals and equipment (hand-held
doppler ultrasounds) to ensure that people who have symptoms of, or who are at risk of, PAD can be offered a clinical assessment and ABPI measurement. In most instances, it is anticipated this measurement will take place in primary care, although other healthcare professionals in podiatry or acute settings, such as diabetes or vascular services, may also assess PAD.

Earlier identification and clinical assessment of PAD should increase the proportion of people with PAD who are identified and have their PAD managed in a primary care setting. Expert opinion suggests that many people are currently referred directly to secondary care for an assessment of potential PAD. However, in most cases this assessment could be carried out in general practice.

Achievement of this quality statement may lead to a reduction in the number of people being unnecessarily referred to secondary care for assessment of suspected PAD. The cost of a first outpatient attendance is £156 for vascular surgery\(^3\).

CCGs should note that there will be some people who are assessed for PAD in primary care settings who will need prompt referral to secondary care (for example, people with signs of ulceration or gangrene). They should ensure that appropriate referral protocols are in place to enable this.

### 4.2 Comorbidity assessment

<table>
<thead>
<tr>
<th>Quality statement 2: Comorbidity assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>People with peripheral arterial disease (PAD) are offered an assessment for cardiovascular comorbidities and modifiable risk factors.</td>
</tr>
</tbody>
</table>

\(^3\) The cost of an outpatient attendance is taken from the 2013–14 Payment by Results (PbR) tariff for specialty 107 – vascular surgery.
PAD treatment focuses on the assessment and management of cardiovascular comorbidities and modifiable risk factors. Three of the main risk factors for PAD are smoking, high blood pressure and diabetes. The intent of the QOF indicators – PAD001–PAD004 (see appendix A) is to improve the identification and management of PAD and reduce cardiovascular risk; 89.8% of GP practices achieved these indicators in 2012/13.

NHS England area teams should ensure that GPs and practice nurses can:

- Assess cardiovascular comorbidities, which should include a review of: smoking status, diet, weight, cholesterol levels, presence of diabetes, presence of hypertension, and any current antiplatelet therapy.
- Where cardiovascular morbidities are identified, give relevant brief advice and support and prescribe appropriate drug treatments.
- Refer people directly to lifestyle support services for smoking cessation advice, lifestyle interventions and supervised exercise programmes (see section 4.3). Close working with CCGs and local authorities is important here.

Achievement of this quality statement may result in more people being assessed for PAD. Effective management of cardiovascular morbidities may reduce the number of preventable cardiovascular events for people with PAD.

Commissioners and others may find the following NICE support for commissioning useful:

- **Support for commissioning for hypertension**
- **Support for commissioning for smoking cessation**
- **Services for the prevention of cardiovascular disease** (particularly section 4.3 on behaviour change and lifestyle interventions and section 4.4 on medical interventions)
4.3 **Supervised exercise programmes**

**Quality statement 3: Supervised exercise programmes**

People with intermittent claudication are offered a supervised exercise programme.

CCGs should ensure that there is local provision of supervised exercise programmes for people with intermittent claudication. They should:

- Consider options for delivering programmes in primary care and community venues (such as local gyms or health centres), to improve accessibility.
- Specify that staff delivering supervised exercise programmes are qualified and understand the specific issues involved in the management of PAD through supervised exercise programmes. The programme should gradually build up people’s pain-free walking distance.
- Ensure that there is adequate capacity in supervised exercise programmes. [NICE clinical guideline 147](#) recommends up to 2 hours of supervised exercise a week for a 3-month period, encouraging people to exercise to the point of maximal pain.
- Promote the service to relevant health and social care professionals including GPs, vascular services and diabetic foot clinics. Expert opinion suggests that, even where supervised exercise programmes exist, referral levels are poor and uptake can be low. Commissioners should work closely with providers and people with PAD to understand the reasons for this and resolve them. The role of exercise in the treatment of PAD should be promoted to both clinicians and patients.

CCGs may consider commissioning supervised exercise programmes as part of the support available in their local [cardiac rehabilitation service](#). This may reduce the costs associated with establishing separate provision. Commissioners should be attentive to the specific needs of a specialised exercise programme because these differ from those of a full cardiac rehabilitation service.
Expert opinion suggests that less than 30% of CCG areas currently have supervised exercise programmes specifically designed for PAD. The majority of CCG areas have cardiac rehabilitation services, although most are not currently available for people with PAD. The costing report for NICE clinical guideline 147 estimated the cost of a supervised exercise programme to be £255 per person, as shown in table 2.

Table 2: Cost of a 3-month supervised exercise programme

<table>
<thead>
<tr>
<th>Resource</th>
<th>Estimated cost for a 1-hour session (£)</th>
<th>Estimated cost for 2 hours a week for 3 months (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 community physiotherapists(^a)</td>
<td>53</td>
<td>1378</td>
</tr>
<tr>
<td>1 physiotherapist technician(^b)</td>
<td>15</td>
<td>390</td>
</tr>
<tr>
<td>Administration(^b)</td>
<td>15</td>
<td>390</td>
</tr>
<tr>
<td>Room hire and rental equipment(^c)</td>
<td>15</td>
<td>390</td>
</tr>
<tr>
<td>Total cost for 10 people</td>
<td>98</td>
<td>2548</td>
</tr>
<tr>
<td>Cost per person(^d)</td>
<td>10</td>
<td>255</td>
</tr>
</tbody>
</table>

\(^a\) Agenda for Change 2013/14 national pay scales – mid-point Band 7 including oncosts.

\(^b\) Agenda for Change 2013/14 national pay scales – mid-point Band 3 including oncosts.

\(^c\) Based on expert opinion of members of the Guideline Development Group for NICE clinical guideline 147.

\(^d\) People will also need a pre- and post-programme sub-maximal functional capacity assessment. For each person, this would need approximately 2 hours of an exercise professionals’ time.

Commissioners and providers need to agree that infrastructure costs are covered in above in order to ensure the service is sustainable. Commissioners and providers should also agree consumables costs which are estimated to be up to £25 per person per course of treatment.

Commissioners may find the NICE support for commissioning useful on cardiac rehabilitation services useful.

Commissioners may find the following resources useful when specifying staff competences:

- **British Association of Cardiovascular Prevention and Rehabilitation (BACPR) position statement – Essential competences and minimum qualifications required to lead the supervised exercise component in early cardiac rehabilitation**
4.4 Imaging

**Quality statement 4: Imaging**

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

Appropriate imaging will identify people with PAD for whom revascularisation is suitable. CCGs should ensure that there is a local imaging protocol for people with PAD that enables clinicians to offer duplex ultrasound as the first-line imaging technology, and magnetic resonance angiography if further imaging is needed.

CCGs should ensure that there is sufficient imaging capacity and appropriately trained healthcare professionals at a local level. There are potential costs associated with the training of radiology staff, where there is an identified shortage of sonographers and radiology staff with expertise in vascular disease, but expert opinion suggests that the cost of this is unlikely to be significant. Organisations are advised to check this at a local level.

The costs of the imaging techniques are shown in the table below.
Table 3 Costs of imaging techniques

<table>
<thead>
<tr>
<th>Healthcare Resource Group (HRG) description</th>
<th>HRG code</th>
<th>Cost (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultrasound – less than 20 minutes</td>
<td>RA23Z</td>
<td>45</td>
</tr>
<tr>
<td>Ultrasound – more than 20 minutes</td>
<td>RA24Z</td>
<td>57</td>
</tr>
<tr>
<td>Magnetic resonance imaging scan, 1 area, pre- and post-contrast</td>
<td>RA03Z</td>
<td>191</td>
</tr>
<tr>
<td>Magnetic resonance imaging scan, 2–3 areas, with contrast</td>
<td>RA05Z</td>
<td>250</td>
</tr>
</tbody>
</table>

4.5 Angioplasty for intermittent claudication

Quality statement 5: Angioplasty for intermittent claudication

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.

Expert opinion suggests that in some areas, angioplasty is performed before non-invasive lifestyle interventions, including a supervised exercise programme, have been tried (see section 4.3). Furthermore, expert opinion suggests that angioplasty is unsuitable for 30–40% of people with symptoms that have not improved with exercise.

CCGs should seek assurance from providers that non-invasive lifestyle interventions, including a supervised exercise programme, have been tried before angioplasty. This may involve monitoring local practice by asking providers to regularly audit local rates of angioplasty for intermittent claudication. Improving access and uptake of interventions to manage cardiovascular morbidities, including supervised exercise programmes, may help prevent the need for angioplasty in some people and reduce costs.
5 Other useful resources

5.1 Policy documents


5.2 Useful resources

- NHS Commissioning Board – NHS Standard Contract for Specialised Vascular Services

5.3 NICE implementation support

- NICE support for commissioning for cardiac rehabilitation services
- NICE support for commissioning on services for the prevention of cardiovascular disease
- NICE support for commissioning foot care services for people with diabetes
- NICE support for commissioners on smoking cessation: supporting people to stop smoking
- NICE costing report for lower limb peripheral arterial disease

5.4 NICE pathways

The NICE pathway on lower limb peripheral arterial disease includes all NICE’s recommendations, quality standards and into practice resources for peripheral arterial disease:
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### Appendix A. PAD Quality Outcomes Framework

#### Indicators 2013–14

<table>
<thead>
<tr>
<th>Indicator Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Records</strong></td>
<td></td>
</tr>
<tr>
<td>PAD001</td>
<td>The contractor establishes and maintains a register of patients with peripheral arterial disease</td>
</tr>
<tr>
<td><strong>Ongoing management</strong></td>
<td></td>
</tr>
<tr>
<td>PAD002</td>
<td>The percentage of patients with peripheral arterial disease in whom the last blood pressure reading (measured in the preceding 12 months) is 150/90 mmHg or less</td>
</tr>
<tr>
<td>PAD003</td>
<td>The percentage of patients with peripheral arterial disease in whom the last measured total cholesterol (measured in the preceding 12 months) is 5 mmol/l or less</td>
</tr>
<tr>
<td>PAD004</td>
<td>The percentage of patients with peripheral arterial disease with a record in the preceding 12 months that aspirin or an alternative anti-platelet is being taken</td>
</tr>
</tbody>
</table>