

A04/S/a

**2013/14 NHS STANDARD CONTRACT
FOR SPECIALISED VASCULAR SERVICES (ADULTS)**

PARTICULARS, SCHEDULE 2- THE SERVICES, A- SERVICE SPECIFICATIONS

Service Specification No.	A04/S/a
Service	Specialised Vascular Services (Adults)
Commissioner Lead	
Provider Lead	
Period	12 months
Date of Review	

1. Population Needs

1.1 National/local context and evidence base

National Context

Vascular disease relates to disorders of the arteries, veins and lymphatics. Conditions requiring specialised vascular care include: lower limb ischaemia; abdominal aortic aneurysm (AAA); stroke prevention (carotid artery intervention); venous access for haemodialysis; suprarenal and thoraco- abdominal aneurysms; thoracic aortic aneurysms; aortic dissections; mesenteric artery disease; renovascular disease; arterial/graft infections; vascular trauma; upper limb vascular occlusions; vascular malformations and carotid body tumours.

The scope of the specialised service includes deep vein reconstruction and thrombolysis for deep vein thrombosis (DVT) but excludes varicose veins and inferior vena cava (IVC) filter insertion.

The prevalence of vascular disease increases with age. Average life expectancy continues to rise especially in males. This suggests that demand for vascular services is likely to increase over time. There are currently an estimated 3m people with diabetes mellitus in England, and prevalence is increasing. Vascular disease is the major cause of morbidity in diabetes and the risks of disease progression are higher, with an epidemic of diabetic foot disease expected in the next decade.

Smoking is a major cause of vascular disease and over 80% of vascular patients are

current or ex smokers. Around 20% of the population over 60 years of age have peripheral arterial disease, with about a quarter of these affected being symptomatic. Approximately 4% of men aged 65 have an enlarged aorta although not all go on to develop a significant aneurysm. The National AAA Screening Programme (NAAASP) will be fully instituted in the next year.

Historically the UK does not compare well internationally for certain vascular procedures. It had the highest mortality rates in Western Europe following elective abdominal aortic aneurysm surgery (7.9% UK vs 3.5% Europe (Vascunet 2008) and is among the slowest nations for uptake of new endovascular technology. Patients are not always treated by a vascular specialist and stay longer in hospital following their surgery than the rest of Europe. There are also significant gaps in the provision of emergency vascular interventional radiology services.

The Vascular Society of Great Britain and Ireland (VSGBI) and the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) have called for a reorganisation of vascular services for emergency and elective care to optimise outcomes for patients. The Abdominal Aortic Aneurysm Quality Improvement Programme (AAA QIP) was initiated after the UK's higher mortality was recognised.

A minimum population of 800,000 is considered necessary for an AAA screening programme and is often considered the minimum population required for a centralised vascular service. This is based on the number of patients needed to provide a comprehensive emergency service, maintain competence among vascular specialists and nursing staff; the most efficient use of specialist equipment, staff and facilities, and the improvement in patient outcome that is associated with increasing caseload.

Over the last few years there have been a number of changes in the structure of vascular services which will start to influence and improve service quality, efficiency and clinical outcomes. However more restructuring will be required to deliver high quality services on an equitable basis. A number of services are currently under active review with implementation plans delivering service changes during 2012/13. Progress will need to continue on these reviews and the further reviews required, ensuring the appropriate service configuration is achieved in the next 2-3 years. The context of these reviews also needs to take into account changes in training and the service implications, for all the specialists involved in the delivery of vascular services. Vascular surgery became an independent specialty in 2012.

Local Context

Evidence Base

In outlining the level and nature of service expected from providers, this service specification is written in the light of the recommendations and published evidence of the Department of Health (DH), the VSGBI, the Royal College of Radiologists (RCR), NCEPOD and all relevant NICE Guidance.

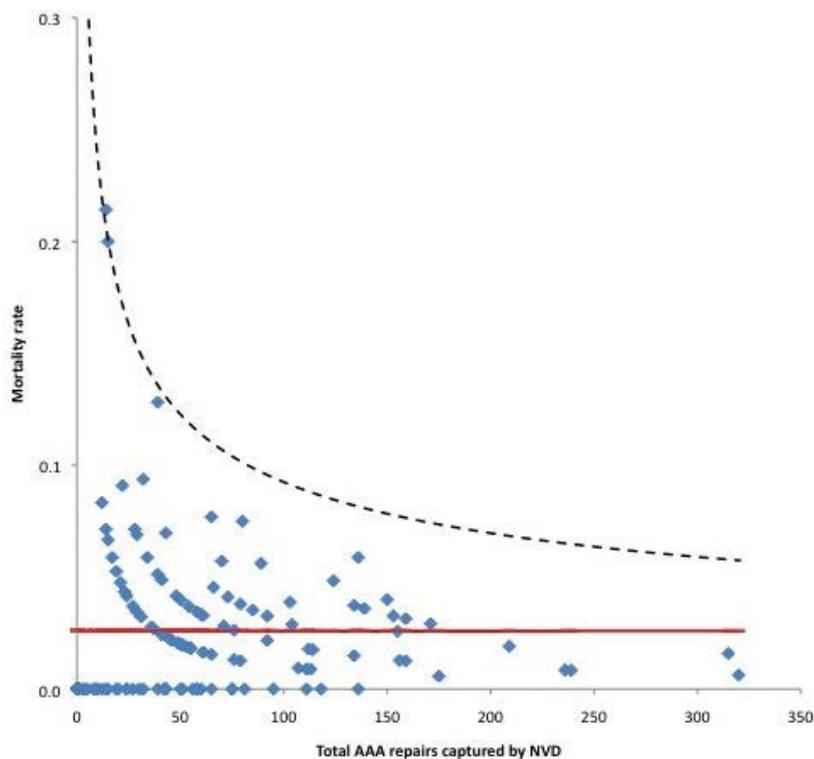
The NCEPOD Report 2005 into patient outcome and death following abdominal aortic aneurysm (AAA) found the overall mortality rate for elective surgery was 6.2%.

The VSGBI and NCEPOD guidance on the provision of emergency and elective vascular surgery services states that the best outcomes are achieved in specialist vascular units with dedicated vascular teams available 24 hours a day, seven days a week.

The VSGBI recommends fewer and higher volume units. The evidence supports minimum numbers of elective procedures that vascular units should undertake and links surgeon elective volume with outcome.

The evidence base concerning the relationship between patient outcome and the organisation of vascular services has become more extensive over the past few years. There is a strong evidence base that suggests that mortality from elective aneurysm surgery is significantly less in centres with a high caseload than in units that perform a lower number of procedures. A meta-analysis of the existing literature (Holt, Poloniecki et al. 2007) reviewed studies containing 421,299 elective aneurysm repairs and reported a weighted odds ratio of 0.66 in favour of higher volume centres dichotomised at 43 cases per year. This result echoes meta-analyses of most complex surgical interventions and should be regarded as definitive and highly informative.

However, although robust, meta-analyses can be criticised due to publication bias, heterogeneity and the predominance of data from certain countries, additional information may be gathered by analysing national administrative data. HES data for elective aneurysm repair in the UK between 2000-2005 (Holt, Poloniecki et al. 2007) demonstrated that the mean mortality for an elective repair was 7.4%, and that 80% of all aneurysm repairs were carried out in units performing less than 33 cases annually. Importantly, the mortality rate in the units with lowest caseload was 8.5% as compared to the 5.9% reported by units with a higher workload. Even more worrying were the many small volume centres where the elective mortality may often exceed 20%. A similar pattern was seen in a recent report from the Vascular Society – Outcomes after Elective Repair of Infra-Renal AAA 2012, and it remains noticeable that some low volume units have mortality rates vastly in excess of the national average:



Recent data have demonstrated that the early mortality difference observed between low and high volume units is maintained in the long term (Holt, Karthikesalingam et al. 2012).

With regard to ruptured AAA, the absolute mortality differences between hospitals in the lowest and highest volume quintiles reached 24% (Holt, Karthikesalingam et al.). Data on operative mortality in isolation, only tells part of the story, as case mix and patients considered “unfit” for surgery must also be considered. In these areas there is evidence to suggest disparate practices, with no surgical intervention being offered to over 50% of emergency patients with ruptured AAA in low volume units as compared to approximately 20% in the highest volume centres(Holt, Karthikesalingam et al.).

Two recent studies have investigated the effect of endovascular repair on the volume-outcome relationship for elective aneurysm surgery. The studies demonstrated that:

- Hospital volume was significantly related to elective aneurysm mortality for open repair, endovascular repair and the combined (open + endovascular) group (Holt, Poloniecki et al. 2009). There was a significant difference between endovascular mortality between the lowest and highest quintile providers (6.88 vs. 2.88%), and a 77% reduction in mortality was observed for every 100 endovascular repairs performed.

- Higher volume hospitals were more likely to adopt endovascular therapy (44% in high volume hospitals vs. 18% in low volume hospitals)(Dimick and Upchurch 2008).
- Hospital volume was an independent predictor of mortality.
- Results were defined by the total aneurysm caseload rather than either endovascular or open cohorts alone i.e. hospitals with a large, predominantly endovascular, caseload also reported better than average results from open aneurysm repair.

Screening for men over the age of 65 for AAA has been introduced: National Abdominal Aortic Aneurysm Screening Programme (NAAASP) with full roll out to be achieved by 2013. It is hoped that there will therefore be an increase in activity for elective aneurysms and a gradual decrease in emergency aneurysm activity.

The use of endovascular and minimally invasive techniques is a rapidly developing area within vascular services and there is likely to be a further shift towards endovascular repair of aneurysm over coming years.

The evidence for volume-outcome relationships has been described for abdominal aortic aneurysms. However, there is evidence that similar relationships affect the performance of other vascular procedures including lower limb arterial reconstruction and carotid endarterectomy (Karthikesalingam et al 2010;Moxey et al 2012)

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- Karthikesalingam A, Hinchliffe RJ, Loftus IM, Thompson MM, Holt PJ. Volume-outcome relationships in vascular surgery: the current status. *J Endovasc Ther.* 2010 Jun;17(3):356-65.
- Moxey PW, Hofman D, Hinchliffe RJ, Poloniecki J, Loftus IM, Thompson MM, Holt PJ. Volume-outcome relationships in lower extremity arterial bypass surgery. *Ann Surg.* 2012 Dec;256(6):1102-7.

2. Scope

2.1 Aims and objectives of service

Vascular services are commissioned to provide diagnostics and treatment for vascular disease. The principal specialities involved are vascular surgery and interventional vascular radiology.

The overarching aim of elective and 24/7 emergency vascular services is to provide evidence-based models of care that improve patient diagnosis and treatment and ultimately improve mortality and morbidity from vascular disease.

The service will deliver this aim by:-

- Improving the patient experience, providing equality of access to the full range of vascular diagnostics and interventions and ensuring that patients are receiving a high quality of service, with access to the most modern techniques.
- Developing and sustaining the resilience of vascular services and the workforce providing those services.
- Improving mortality and morbidity rates for people with vascular disease and improving survival rates following hospitalisation.
- Improving complication rates following a vascular admission (short and long term).
- Reducing mortality rates by preventing death from ruptured abdominal aortic aneurysm, stroke, lower limb ischaemia and vascular trauma.
- Providing early intervention and treatment to achieve regional reductions in the incidence of stroke due to carotid artery disease and leg amputation due to peripheral arterial disease.
- Supporting other services to control vascular bleeding and manage vascular complications.
- Working jointly with the diabetic and podiatry service to optimise care, minimise tissue loss and prevent amputation.

Although care for varicose veins is often provided by vascular teams this specification excludes these procedures as they are not included in the specialised definition.

2.2 Service description/care pathway

This service comprises the following elements:-

- Diagnosis and assessment of vascular disease (including the input of the vascular laboratory and diagnostic imaging).
- Outpatient management of patients with peripheral arterial disease.
- Inpatient spells, emergency and elective activity.

- Day case activity.
- Outpatient follow up of patients receiving vascular surgery/endovascular interventions.
- Rehabilitation services particularly for post amputation care.

Service Model

Vascular services need to be organised to allow reasonable volumes of elective activity to exist alongside an acceptable consultant emergency on call rota thus ensuring appropriate critical mass of infrastructure and patient volumes.

There are two service models emerging which enable sustainable delivery of the required infrastructure, patient volumes, and improved clinical outcomes. Both models are based on the concept of a network of providers working together to deliver comprehensive patient care pathways centralising where necessary and continuing to provide some services in local settings.

One provider network model has only two levels of care: all elective and emergency arterial vascular care centralised in a single centre with outpatient assessment, diagnostics and vascular consultations undertaken in the centre and local hospitals.

The alternative network model has three levels of care: all elective and emergency arterial care provided in a single centre linked to some neighbouring hospitals which would provide non arterial vascular care and with outpatient assessment, diagnostics and vascular consultations undertaken in these and other local hospitals.

The network model adopted will follow the principles and governance set out in the national guidance on Operational Delivery Networks.

Vascular Networks

All Trusts that provide a vascular service must belong to a vascular provider network.

The network arrangements must be clearly documented and have clearly articulated governance arrangements. As well as the weekly multi-disciplinary team meetings there will be regular business meetings to ensure an inclusive and coherent approach to audit, education and training.

To avoid any misunderstanding, it is envisaged that all arterial surgery will be provided at a vascular centre, with the facilities outlined below.

Leg amputations should be undertaken in the arterial centres due to the need to improve/reduce the current perioperative mortality rate. It is recognised that, at present, due to capacity pressures, in the short-term, leg amputations may need to continue to be undertaken out-with the centres in designated units. Provider networks will work towards the aim of all leg amputations being undertaken in arterial centres by 2015 and develop a robust implementation plan to achieve this.

In circumstances where leg amputations are undertaken outside the arterial centre the patient must be under the care of the arterial network and the procedure undertaken by a vascular specialist. All patients considered for leg amputation including those operated on locally should be discussed by the vascular multi-disciplinary team and will be given the same opportunities for limb salvage as those treated in the arterial centre. All leg amputation patients/procedures will be included in the network audit.

In-patient arterial surgery and vascular interventional radiology will be available 24/7 within the arterial centre with a vascular on call rota for vascular emergencies covered by on site vascular surgeons and vascular interventional radiologists to ensure immediate access for emergency procedures and post operative care. In practice that means a vascular medical team of a minimum of 6 vascular surgeons and 6 vascular interventional radiologists to ensure comprehensive out of hours emergency cover.

Each surgeon will need to have an appropriate arterial workload (e.g in the region of 10 AAA emergency and elective procedures per surgeon per year and commensurate numbers of lower limb and carotid procedures), which will necessitate an appropriate catchment area to generate sufficient case volume. A minimum population of 800,000 would be appropriate but for a world class service a larger catchment area will be required.

A 24/7 vascular interventional radiology rota may need to be organised on a network wide basis to ensure that interventional radiology services for other specialties, in local hospitals, are not destabilised. All participants in the rota must have the appropriate skills and competencies to undertake the full range of vascular interventional radiological procedures. Emergency access to vascular interventional radiology must be within 1 hour from initial consultation to intervention.

Where appropriate, day case and first line diagnostics procedures will be provided locally.

The network may also agree that low risk peripheral vascular interventions can be undertaken locally, to utilise local skills and local interventional vascular radiology capacity. The scope of this local provision must be clearly defined and the activity must be included in the network audit arrangements. (See appendix A).

With regard to services for patients with chronic vascular conditions arising from venous insufficiency and diabetes, local models of care will be developed.

Each vascular network will have a formalised description of where inpatient, day case and outpatient services are provided in the network.

Local protocols will be agreed to provide high quality specialist care at any non-arterial hospitals in the network. Clear written arrangements will exist for cover of inpatients and the transfer of emergencies out of hours. Formal arrangements will also exist to enable vascular-specialists working predominately at a spoke hospital to support out-patient clinics, ward work and non arterial surgery on appropriate sites

across the network.

The provider network will nominate a lead vascular clinician and a lead manager with responsibility for ensuring and maintaining implementation of the standards set out in this service specification and locally agreed policies/protocols.

All patients with vascular disease or vascular complications cared for outside the main arterial centre must have access to the same high quality of care and the same opportunities/choices of care as those patients who are in the arterial centre hospitals.

The vascular service will provide a diagnostic and treatment service through a multidisciplinary team model.

Specialist Vascular Team

Patients with vascular disorders will be cared for by specialist vascular teams. These teams will include vascular surgeons, consultant anaesthetists, interventional vascular radiologists, vascular scientists, nurses, radiographers, physiotherapists, occupational therapists and rehabilitation specialists.

The vascular multidisciplinary team will be hosted by the arterial centre. Clinicians providing emergency care will be part of the vascular services multi-disciplinary team and be delivering both in and out of hours care in the network arterial centre.

Care of patients will be managed through regular multi-disciplinary team meetings which will occur at least once a week. The membership requirements for the multi-disciplinary team meeting will include a range of clinical disciplines and be formalised. The documentation will include statements on minimum levels of attendance for individuals and quoracy. It is expected that all clinicians will attend multi-disciplinary team meeting on a regular basis.

Emergency procedures will be reviewed at the next multi-disciplinary team meeting.

Discussion at the multi-disciplinary team meeting will precede elective vascular procedures being undertaken, although protocols will be developed to ensure that urgent cases are not delayed inappropriately.

The specialist vascular team will also support the care of patients under the management of other specialties.

Infrastructure/Facilities

With regard to the whole vascular service across the network there will be access to the following:

- Outpatient Clinics – will include access to nurses experienced in ulcer and wound dressing. Doppler ultrasound machines should be available. There will be access to Doppler machines in the clinic.
- Vascular Laboratory – the vascular laboratory service will be available for the diagnosis and assessment of arterial and venous disease. (Service availability does not necessarily have to be within the confines of a vascular laboratory).
- Vascular Ward – patients with vascular disease will have access to dedicated vascular beds. There will be sufficient dedicated beds to accommodate the routine elective work and emergency admissions. Beds will be staffed by an appropriate skill mix of nurses who have been trained in the care of vascular patients. Doppler investigation will be available on the ward.
- Interventional radiology suite with access to nursing staff who have been trained in vascular procedures.
- Operating Theatres – a 24 hour NCEPOD emergency theatre will be accessible at all times to undertake emergency vascular procedures.
- Operating theatres – a vascular operating theatre with experienced vascular theatre staff should be available for elective activity.
- Operating theatres – facilities for endovascular aneurysm repair should be available with facilities as described by the Joint Working Group to produce guidance on delivering an Endovascular Aneurysm Repair Service
- Anaesthesia – elective vascular services will have dedicated vascular anaesthetic input into elective services, from anaesthetists experienced in dealing with the vascular patient and with a special interest in this area.
- Intensive Treatment Unit (ITU) and High Dependency Unit (HDU) – Facilities with full renal support must be available on-site to support the vascular service. Bookable HDU/ITU with sufficient beds will be available for elective patients.
- Limb Fitting Service – the vascular service must ensure its patients have access to a local limb fitting service, which meets the standards set by The British Society of Rehabilitation Medicine.

Care Pathways

The following care pathways will be documented by each vascular network:

- Management of acute rupture of AAA
- Investigation and management of unruptured AAA
- Investigation and management of carotid disease (link to stroke care pathway)
- Management of acute limb ischaemia
- Investigation and management of chronic vascular insufficiency
- Management of vascular access for renal patients, if undertaken by vascular specialists
- Management of vascular injury (including complications of angiography)

The following pathways are published by the Map of Medicine:

- Abdominal Aortic Aneurysm Screening
- Peripheral Arterial Disease Pathways including suspected disease, secondary care investigations, surgical revascularisation and shared care
- Venous thromboembolism pathways (VTE) risk assessment and prophylaxis and diagnosis and management

Highly Specialised Interventions

Some interventions/treatment are complex, rare or require other specialist input such as cardiothoracic surgeons e.g. thoraco-abdominal aneurysms. These procedures will only be carried out in arterial centres with the required skills and clinical linkages.

There needs to be a close relation between vascular services and cardiology/cardiac surgery services and whilst colocation is desirable it is not essential.

The introduction of new technologies will need to be managed and developed in line with commissioning policies. This may mean that only a small number of centres nationally are identified as a provider, with a greater catchment population than general arterial centres.

The use of fenestrated and branched endovascular stents for repairing aneurysmal disease of the aorta is an area of developing practice in vascular surgery. A separate commissioning policy will describe the appropriate patient group to receive this treatment and the service provision requirements in order to deliver this treatment.

Commissioners will need to judge whether or not there is a need to develop capacity to meet population need, taking into account existing case series.

2.3 Population covered

Patients will experience varied contact with the service depending on the nature and severity of their condition. Patients will fall outside the scope of this specification when discharged from the care of the specialist vascular team.

The service outlined in this specification is for patients ordinarily resident in England*, or otherwise the commissioning responsibility of the NHS in England (as defined in *"Who Pays?"¹: Establishing the responsible commissioner* and other Department of Health guidance relating to patients entitled to NHS care or exempt from charges).

Emergency admissions ambulance coverage will reflect the network footprints. Bypass arrangements will operate to ensure arterial emergencies are taken directly to the arterial centre.

2.4 Any acceptance and exclusion criteria

The service will accept all patients who have been referred via their GP or other

¹ Note: for the purposes of commissioning health services, this EXCLUDES patients who, whilst resident in England, are registered with a GP practice in Wales, but INCLUDES patients resident in Wales who are registered with a GP Practice in England. Specifically, this service is for adults with vascular conditions requiring specialised intervention and management, as outlined within this specification.

health care professional to a vascular specialist within secondary or tertiary care, or who have presented as an emergency in secondary care and identified as a vascular emergency. There will also be referrals from the National AAA Screening Programme.

This specification excludes the care of varicose veins as these procedures are outside the scope of the specialised service definition.

Vascular services for children are covered in the specialist paediatric surgery service specification.

2.5 Interdependencies with other services

Vascular services link to a range of other clinical specialties and services:

Co-located services

- Intensive care
- Interventional vascular radiology

Interdependent services

- Stroke surgery and vascular opinion on stroke management
- Limb salvage surgery
- Diabetes specialist hospital services and diabetic community services
- Renal inpatient units
- Interventional cardiology
- Cardiac surgery
- Thoracic surgery
- Major trauma centres and trauma units

Related services

- Rehabilitation services
- Limb fitting service

Relevant networks and screening programmes include:-

- Cardiac/Stroke networks
- Renal networks
- Critical Care networks
- Trauma networks
- AAA screening programme

3. Applicable Service Standards

3.1 Applicable national standards e.g. NICE, Royal College

There is a range of guidance available covering vascular services which set out the required service standards. The most significant are:-

- VSGBI: The Provision of Services for Patients with Vascular Disease 2012.
- NHS Abdominal Aortic Aneurysm Screening Programme Guidance for Public Health and Commissioners, July 2009.
- Royal College of Radiologists – Setting the Standards of Providing a 24 hour Interventional Radiology service, September 2008.
- Royal College of Radiologists – Standards in Vascular Radiology – 2011.
- NCEPOD Report 2005 – Abdominal Aortic Aneurysm – A service in need of surgery.
- VSGBI and the Royal College of Surgeons – Training in Vascular Surgery and Standards for Vascular Training – 2011.
- Medicines and health products Regulatory Agency (MHRA) Joint Working Group to produce guidance on delivering the Endovascular Aneurysm Repair (EVAR) Service (RCR, BSIR, VSGBI, Vascular Anaesthesia Society of Great Britain and Ireland(VASGBI), MHRA Committee on the Safety of Devices) – December 2010.

CORE STANDARDS

The core standards which ultimately shape the configuration of vascular services include:-

- As the new specialty of vascular surgery is established provision will need to be made for the separation of vascular and general surgery with vascular surgeons only treating patients with vascular disease, this will be required at both consultant and trainee level.
- Patients with a vascular emergency will have immediate access to a specialist vascular team at the arterial centre with on site vascular surgery and interventional vascular radiology.

The arterial centre in the network will perform a high volume of vascular procedures per year. There is debate about the minimum/ideal volume of procedures. However, 6 surgeons, each with around 10 AAA procedures per surgeon per year would indicate at least 60 AAA procedures per centre. There would be a commensurate number of lower limb procedures.

The arterial centre will also perform a high volume of carotid endarterectomy procedures. A minimum number of 50 is indicated.

All vascular consultants working in vascular networks must routinely enter data onto the following databases/audits:-

- The National Vascular Database
- The Carotid Endarterectomy Audit (CEA)
- National Vascular Registry (when functional)

- The British Society of Interventional Radiology BIAS databases

Endovascular aneurysm repair (EVAR) will only be performed in specialist centres by clinical teams experienced in the management of AAAs. These teams will have appropriate expertise in all aspects of patient assessment and the use of endovascular aortic stent-grafts including the necessary expertise to manage complications encountered during these procedures.

Vascular centres providing post screening AAA repair must meet all the standards set out by the NAAASP

NB: The AAA and CEA volumes quoted are currently indicators but over time as services are reconfigured will become the minimum.

NICE guidance of significance to elective and emergency vascular services, exists as follows:-

- CG10 Type 2 diabetes footcare – (January 2004)
- CG66/87 Diabetes – type 2 (update): (May 2008/May 2009)
- CG68 Stroke - (July 2008)
- CG92 Venous thromboembolism – reducing the risk (January 2010) o CG119 Diabetic foot problems-inpatient management – (March 2011)
- CG127 Hypertension – (August 2011)
- CG147 Lower limb peripheral arterial disease – (August 2012)
- TA167 Endovascular stent-grafts for the treatment of abdominal aortic aneurysms – (February 2009)
- TA210 Vascular disease – clopidogrel and dipyridamole – (December 2010)
- IPG52 Endovenous laser treatment of the long saphenous vein - (March 2004)
- IPG60 Thrombin injections for pseudoaneurysms - (June 2004)
- IPG74 Balloon angioplasty with or without stenting for coarctation or recoarctation of aorta in adults and children - (July 2004)
- IPG79 Stent placement for vena caval obstruction - (July 2004)
- IPG127 Endovascular stent-graft placement in thoracic aortic aneurysms and dissections – guidance (June 2005)
- IPG163 Stent-graft placement in abdominal aortic aneurysm – Guidance (March 2006)
- IPG229 Laparoscopic repair of abdominal aortic aneurysm - (August 2007) (February 2009)
- IPG388 Carotid artery stent replacement for asymptomatic extracranial carotid stenosis – (April 2011)
- IPG390 Endovascular stent-grafting of popliteal aneurysms – (April 2011)
- IPG389 Carotid artery stent placement for symptomatic extracranial carotid stenosis – (April 2011)

4. Key Service Outcomes

Abdominal Aortic Aneurysm

Metric	Agency	Definition	Target	Acceptable
Mortality	NVD/NVR	Unit overall elective AAA in hospital mortality (by end 2013)	≤3.5%	<6%
Length of Stay	NVD/NVR	LOS for elective AAA repair	<7d	<10d
Number of AAA repairs per arterial centre	NVD/NVR	Number of AAA repairs (total – elective and emergency)	>60	>50
Mortality: elective repair	NVD/NVR	All cause mortality at 1 year (collect from ONS)	≤15%	≤20%
Time to treatment	NAAASP	% of subjects with AAA ≥5.5cm deemed fit for intervention operated on by vascular specialist within eight weeks	≥80%	≥60%

Carotid Intervention

Metric	Agency	Definition	Target	Acceptable
Stroke rate	NVD/NVR*	Stroke rate 30 days after surgery	<2%	<3%
Mortality	NVD/NVR	Death rate 30 days after surgery	<1%	<2%
Referral	National Stroke Strategy	Delay from symptom to treatment for suitable patients (by 2013)	<7 days	<14 days

*National Vascular Database/National Vascular Registry

Peripheral Arterial Disease – Lower Limb Bypass (PAD)

Metric	Agency	Definition	Target	Acceptable
Mortality	NVD/NVR	Death 30 days after surgery	<5%	<10%
Amputation free survival	NVD/NVR	Amputation free survival 1 year post surgery	Needs benchmarking in NVR	

Lower limb amputation

Metric	Agency	Definition	Target	Acceptable
Mortality	NVD/NVR	In hospital mortality	5%	≤15%
Procedure	VSGBI QIF*	Patients should undergo surgery on day time lists (between 0800 and 2000)	90%	75%
Procedure	VSGBI QIF	Ratio of below to above knee amputation in unit	>1	1
Outcome	VSGBI QIF	Rate of amputation revision to higher level	<10%	<12%

*Quality Improvement Framework

Interim for adoption from 01/10/13

Appendix A

The Provision of Vascular Interventional Radiology Services to Patients at Non Arterial Hospitals within a Vascular Network

What constitutes an MDT?

Major arterial cases that are being considered for intervention should be discussed at a Vascular MDT. The MDT should be held at least once a week and involve all clinicians concerned with the care of vascular patients. This will include vascular surgeons and interventional radiologists and may include vascular nurses, radiographers, radiology nurses, other medical specialities and anaesthetists.

There should be one MDT meeting for each vascular network, where patients can be considered for all available open and endovascular treatments. Clinicians from non-arterial networked hospitals should be encouraged to attend in person, but arrangements for teleconferencing should also be available. In some centres it may be appropriate to have separate specialised MDTs.

What sorts of patients are suitable for peripheral angioplasty or stenting at non-arterial sites?

All major arterial interventions should be performed on the designated arterial site with 24/7 cover from vascular surgery, interventional radiology and anaesthesia/ITU. Subject to locally agreed protocols audited for quality of outcomes against agreed standards, some patients may be managed on non-arterial sites, so long as there are robust arrangements for transfer in case of emergency. These will primarily involve patients which can be managed as day cases. Patients requiring an overnight stay for social rather than medical issues must be managed on a ward experienced in the care of vascular patients; this should include 24/7 cover arrangements for the management of complications. Renal patients requiring intervention can be treated within a designated renal access/transplant centre, so long as there are firm 24/7 protocols for vascular referral if required.

What sorts of workloads are appropriate to maintain skills?

All patients undergoing vascular interventional procedures should be recorded on locally or nationally held databases. Those hospitals with insufficient workload to maintain competency, should discuss transferring their caseload to a designated arterial centre.

How do we measure competency?

All patients undergoing peripheral vascular intervention should be audited through the national databases (e.g. NVR/British Society of Interventional Radiologists Iliac Angioplasty and Stenting database (BIAS)) and complications discussed at a regular mortality & morbidity meeting. This should be convened centrally and outcome measures should include death or major complication (i.e. bleeding, occlusion, amputation). In addition, details of urgent transfer or request for assistance should be

monitored and audited annually.

Should a surgeon be present on site if intervention is being carried out?

All vascular surgeons involved in a vascular network should perform their major arterial cases at a designated arterial hospital, but must provide a daily service to non-arterial sites. This will involve attendance at OPD clinics, ward rounds to review patients, either prior to or after their intervention at the major arterial centre, and to support colleagues from other specialties requiring vascular assistance. There will not necessarily be a vascular surgeon present at all times, but there should be formal on-call rotas to allow for 24/7 cover for all patients in an emergency.

What should the transfer arrangements be if patients require emergency surgical intervention?

These should be decided by agreed protocols and will vary depending on the local arrangements for provision of specialty services and geography. Where 24/7 cover is not possible, this must be provided by the designated arterial centre with robust arrangements in place for review/transfer. This should apply to all clinicians performing arterial or venous catheterisation.

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End.