

Service Specification for the Non-Arterial centres or Spoke units of a Vascular Hub and Spoke Network

Recommendations of the Working Group of the Vascular CRG

Arun Pherwani

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This document should be read alongside the 'Provision of Services for Patients with Vascular Disease 2012' published by the Vascular Society and the 'Service Specification for Specialised Vascular Services' currently being finalized by the Vascular CRG.

Introduction

National recommendation is that a minimum population of 800,000 is considered necessary for a vascular service. This is based on the population required for an aortic aneurysm screening service, the number of patients needed to maintain competence among vascular specialists and nursing staff and to ensure the most efficient use of specialist equipment, staff and facilities. As such, it was agreed that networks form across the country to ensure the provision of specialist vascular services for emergency and complex vascular surgery. These recommend a model of care in which inpatient arterial care is centralized to a hub, with key aspects of the service being maintained at spoke sites. This serves the dual aims of generating the best outcomes for patients requiring inpatient care whilst delivering as much of the service as possible aspects closer to the patient.

There is no single, all-encompassing model for non-arterial Centres as this will be subject to local factors such as geography and pre-existing service configuration, but there are number of key factors to consider which will be common to all. One of the main concerns voiced is that the vascular service at non-arterial centres will inevitably become secondary to the demands of the central hub, the service provision and vascular presence at the spoke hospitals will decline and that consequently their patients will consequently have reduced access and poorer outcomes. It is therefore imperative that steps are taken at the outset to ensure that this does not occur and that the proposals are communicated effectively to relevant parties during service design. In many cases it is likely that the revised service will result in both an improved access to a consultant vascular surgeon at spoke sites and effective vascular cover which is the overall responsibility of the Network, to the spoke site

The business cases for these networking arrangements should set out the recommended investment plans and implementation plan for a strategic alliance of vascular services across organisations; Hub organisation and Spoke / spokes organisations if these belong to separate trusts, seek the approval of the Trust Board of each of the organisations.

Governance Structure

An Executive Steering Committee should be established, comprising clinical, managerial, executive and commissioning leads from across the proposed network area, working collaboratively to develop a proposed network model, which ensures clinical effectiveness, national compliance and a robust financial model.

The committee has to agree on,

- an activity model across organisations, which responds to the model of care agreed by the Executive Steering Committee.
- the resource requirements and associated costs at the Hub site.
- the resource reductions and associated costs at spoke sites; the proposed reductions at spoke are often significantly less than the resources required at the hub site.
- The workforce requirements to support major elective and emergency activity at the Hub site
- More specifically workforce requirements to support elective activity and provide vascular presence or cover at the spoke sites.... hence,
- Consultant Vascular Surgeon job plans and sessional requirements at Spoke sites.
- Consultant Interventional Radiologists and sessional requirements at Spoke sites
- Consultant Vascular Anaesthesia and sessional requirements at Hub sites
- Examine requirements for TUPE of any individuals
- The target outcomes and processes for performance monitoring across the hub and spoke sites
- The administrative processes adopted to support the shared care of patients between multiple organisations and to ensure the provision of patient information across multiple sites
- The arrangements for ongoing review and monitoring
 - Network Governance; quality, safety, experience and effectiveness
 - Performance; 18 weeks pathway, readmission for cancellations in 28 days
 - Financial; SLA, compliance
 - Adverse events, Audit, MDT, M&M,
 - Compliance with data entry into the National Vascular Registry

Financial Implications and Models

The financial analysis will suggest increased cost across the Network organisations. However it should be noted that if all organisations were now required to meet the standards now required for Vascular independently this would be a higher total cost overall, the end product of the Vascular Network is not comparable on a like-for-like basis with the original costs of the multiple organisations.

The alternative model of single trust and multiple sites in some ways is easier to plan financially as the cost implications are for one organisation alone with redistribution of costs and income from individual sites

Hence Hub costs include set-up costs to enable all organisations within the network to meet the required standards for a compliant vascular service; consultant staff in vascular surgery, IR and Anaesthesia, support staff, intensive care capacity, critical care refurbishment, critical care equipment, IT systems and surgical beds.

The income associated with the activity transferring from to the Hub site from the spoke sites together with income not previously seen within any of the organisations from newer / alternative commissioning areas are to be valued

Current estimate of predicted loss for Spoke site one – based on HRG QZ activity spells in the previous financial year

Current estimate of predicted loss Spoke site two

Current estimate of predicted position for Hub site - Breakeven leaving...XX% contribution to overheads

The spoke sites will experience difficulties in removing costs due to the small scale of the activity reductions, which is balanced in certain areas in terms of an overall increase in network cost which is borne by the hub site.

The commissioning arrangements for the activity to be undertaken at the arterial hub will be contracted through the standard NHS commissioning process,

In relation to resources shared between the hospitals within the network, these will be contracted through a Provider to Provider arrangement, formalised by agreed Service Level Agreements between the relevant organisations and chaired by a shared leadership via a Joint Network Board

An alternative financial model proposed is a Cost and Profit / Loss Sharing where the hub and spoke organisations share the initial capital outlay costs

Based on HRG QZ codes a single pool of income is generated which is divided between the hub and spoke sites based on a pre-determined arrangement of contribution of costs which include consultant time, activity based on SLA from the previous financial year and

the contributions made to make the hub site compliant for a vascular service. Thus the profits or the losses made are shared between the organisations and this can be reviewed on a yearly or three yearly basis based on – consultant time and cover at spoke sites and HRG QZ codes based on activity from the spoke sites?

The spoke sites will need to explore other opportunities to utilise the unutilised capacity where costs cannot be taken out such as theatres, ward capacity, anaesthetic capacity and intensive care beds. There is also the expectation that savings would be made in the short term on – staff payments – reduction in PA's, closure or redistribution of surgical beds, absence of replacement programme for the associated equipment.

There is also the potential of transfer of day case elective activity such as varicose veins and vascular access but that loss will have to be borne by the Hub organisation and it is often a difficult one. This is easier with the alternative single financial cost and sharing model.

Of note financial implications should not include AAA screening, as this should have been approved via a separate business case incorporating the network.

There is also the possibility of transfer of non-vascular work between organisations to compensate for the loss of elective and emergency vascular activity – but that is based on local arrangements, alliances, the capacity, structure and expertise available electively and emergency at the spoke sites and networking and alliance arrangements in branches other than vascular surgery and IR.

CLINICAL PATHWAYS

Within the network hub and spoke model, emergency and complex elective vascular activity will transfer to hub, whilst outpatient, diagnostic procedures and non-complex elective day case vascular activity remains at local hospitals (hub and spoke sites).

Procedures transferring from Spoke sites to Hub centre

Vascular Surgery	Aortic aneurysms EVAR Carotids Supra and Infra-inguinal reconstructions Amputations – major Complex vascular access All patients with vascular emergencies Out of hours vascular admissions
Interventional Radiology	EVAR Interventional Radiology associated to Emergency procedures Complex or Joint surgical and IR procedures

Vascular Consultant presence at Spoke sites

The importance of the vascular presence at spoke sites cannot be over-emphasised. For a vascular network, it is as important to provide cover to non-arterial spoke hospitals, as it is to provide vascular cover to the population they serve.

The aspects are to provide outpatient clinics, perform day case lists, to see ward referrals, have time for patient related administration and often SPA time along with providing a 'vascular presence' at the spoke site for unforeseen vascular emergencies that may arise during daytime hours particularly in non-vascular operating theatres.

In addition, in some vascular networks services such as cardiac surgery and even a MTC (major trauma unit) may be at a non-arterial site that itself is a major hub for services, just not necessarily an arterial hub. This is to be recognised in planning of local service provision and consequently the vascular presence accounted for.

The number of sessions required to fulfill these duties is dependent on the size of the hospital and they should be spread sensibly through the week in order to ensure that inpatient referrals are seen within 24hrs wherever possible.

In order to provide a comprehensive service which enables cover for the College recommended Vascular Consultant of the Week duties at the hub and annual/study leave, it is recommended that spoke sites have an **absolute minimum of 2 surgeons** to provide the vascular service, with the number of delegated surgeons increased accordingly.

In some networks **ALL** surgeons share duties at the hub and spoke sites. This is dependent on local arrangements but uncertainty at which surgeon is to provide cover on a daily or weekly basis at a non-arterial centre is largely undesirable. Too large a complement of surgeons providing a service in rotation discourages the development of professional and referral relationships with other specialities and GP colleagues in the local communities, and in certain cases can disenfranchise established local referral practices.

In practice whatever the arrangements are it should be clear that at times of Vascular consultant of week duties at the hub / elective major arterial operating at the arterial centre/ annual leave / study leave – the **network carries the responsibility** of providing day-time vascular cover to the non-arterial sites. That is the rationale of the recommendation of an absolute minimum of 2 with perhaps and additional 1-2 surgeons providing cover for times of leave.

In actual fact this should result in there being a vascular presence on (at least part of) 5 days of the week. The temptation to timetable surgeons to be present at spoke sites outside of specific sessions 'just in case of' a vascular emergency should be avoided.

Consultant Job planning

With two surgeons performing two clinics and perhaps a shared diabetic foot clinic (3 PA's) 2 day case lists (2.5 PA's) daily ward rounds for emergency referrals (1.5PA's)

patient admin (2 PA's), SPA (2-3 PA's) it is quite possible to produce sustainable job plans that provide for a vascular presence for 9-10 PA's per week at a non-arterial site.

This will ensure that about 40% of consultant job plans are devoted to the spoke site with the remainder at hub sites. It is important that this is recognised in job planning negotiations.

In most cases of reorganization consultants at spoke sites will not have junior medical support and the service will be predominantly consultant delivered. If there are pre-existing arrangements with additional middle grade cover these should be retained and encouraged as part of delivering the agenda of teaching and training wherever possible. This and the potential of teaching medical students may also increase the scope of providing a vascular presence at the spoke sites.

There is also the potential to be part of an MDT process joined via a web-link as is the case with cancer MDT and some supra-regional vascular MDT's. These could be done from the spoke site thus increasing the time spent at the non arterial site at the expense of travel time to attend an MDT at the arterial hub.

It is recommended that the role of **Vascular Specialist Nurses** is expanded as required to support out-patient clinics and facilitate management of inpatient referrals. It is imperative that any gaps in on-site presence must be backed up by clear guidelines regarding vascular emergencies and that the responsibility of providing these guidelines lies with the governance structure of the network.

Outpatient Clinics

All outpatient appointments will continue to be delivered at all hospitals within the network, ensuring that patients are able to attend outpatient appointments in their local hospital.

These will form part the main component of the service at spoke sites. Clinic templates should be reviewed as part of any reorganisation in order to ensure there is sufficient capacity for the predicted demand.

Long-term follow-up of stable patients should be discouraged in order to keep clinics to a manageable size. A starting ratio of 1 new:2 follow-up patients is a useful benchmark and a single handed consultant can expect to work to a template of 4N:8FU in a single session.

The booking system should be able to flex the initially agreed template according to demand in order to ensure that clinics are used as effectively as possible eg. 1 N could replace 2 FU and vice versa.

Templates should enable urgent referrals to be seen within a week but there should be a facility for very urgent cases to be seen at the hub. Cases presenting to A&E or from GPs can usually be seen in the next available clinic in one-stop fashion rather than being admitted unnecessarily as an emergency.

As will be seen in the ensuing sections on consultant numbers a minimum of two vascular clinics a week at spoke sites with one possible additional shared / joint diabetic foot clinic will ensure such additional outpatient capacity and reduce emergency admissions at the hub site.

It is of relevance to note that although most investigations and PREAMS appointment can be done at the spoke site unless there is a single blood bank / lab or similar networking arrangements in pathology, for governance reasons the patient will have to come within 5 days of surgery or on the day, for a blood group / X match at the hub arterial site if undergoing major arterial surgery.

Diagnostic services

Most if not all diagnostic procedures will continue to be delivered at all hub and spoke hospitals within the network, ensuring that patients are able to attend outpatient appointments in their local hospital.

These may include

Duplex ultrasonography

CT angiography

MRA

Cardiac assessment

Respiratory assessment

(The last two may be delivered according to established local protocols of CPEX testing, non-invasive myocardial perfusion scanning or stress ECHO)

It is recommended that, where appropriate, new patients should be offered a 'one-stop' service, with consultation and Duplex scanning taking place at their initial visit. This is convenient for patients and reduces the demand for follow-up appointments.

An appropriately resourced Vascular Lab, in terms of both personnel and equipment, is crucial if the service is to be run as efficiently as possible, especially in terms of providing one-stop clinics and urgent investigation of inpatients from other departments such as Stroke and Diabetes. The Vascular Lab should have systems in place to provide follow-up of patients after angioplasty +/- stenting and infra-inguinal bypass, avoiding the need for further follow-up appointments after the first post-procedure visit or a trip to the hub site. The Vascular Lab is also the ideal place to base an aortic surveillance programme for patients with an aneurysm identified outside of the National AAA Screening Programme. The majority of patients can be informed of their results by mail, without the need to attend a routine appointment.

Radiology departments should ensure the rapid and seamless transfer of images on PACS (particularly 1mm cuts on CT images) or IEP protocols ensured to allow discussion and planning at MDT

Inpatient referrals

There should be a well described process for making referrals, ideally electronically, or via a vascular secretary or PA at the spoke site with the stated aim that patients are seen within 24hrs whenever possible. If consultant (or VSN) review cannot take place within a reasonable timeframe, or a more urgent opinion is required, the referrer will need to be directed to the hub to the on-call consultant of the week to discuss the best course of management.

Ideally timings of ward rounds should be staggered during the week to allow a degree of flexibility in seeing patients wherein a vascular referral is made after a morning ward round in another speciality.

Day-case lists

These serve the dual purpose of maintaining a vascular presence as well as treating patients locally and will form the bulk if not all of the operating at the non-arterial site. For most surgeons the majority of day-case work will be treatment of varicose veins but will also include vascular access work.

For varicose veins the emphasis should be on modern management under local anaesthetic using thermal ablation techniques combined with foam sclerotherapy. Day case general anaesthesia lists may also be performed with provision made for cover rather than transfer of the rare patient who may require an overnight stay.

Vascular access work should preferably be restricted to local and regional anaesthetic cases, which constitutes the majority. This includes not just renal access operative procedures but also the provision of percutaneous access such as placement of Hickman lines and implantable ports. More complex cases, and those renal access cases requiring general anaesthetic or an overnight stay in hospital and observation should be carried out only at the arterial hub where there is provision to intervene after hours in cases of bleeding or acute thrombotic complication.

There may be the potential of transfer of some elective day case procedures from the hub to the spoke centres to maintain elective activity

Amputations

Major amputations

Patients requiring lower limb amputation represent the highest risk group in terms of morbidity and mortality. The peri-operative mortality rate after major amputation in the UK is unacceptable. Rates of 17% (HES data) and 9% (NVD data) were reported to the VSGBI AGM in 2009. The Vascular Society's QIF for major amputation surgery aims to reduce peri-operative mortality rate after major amputation surgery to less than 5% by 2015.

Patients requiring major amputations will require assessment to deem the limb is unsalvageable or and or management of pain, MDT discussion, anaesthesia by vascular anaesthetists, surgery ideally on vascular lists with a consultant vascular surgeon present, adequate post operative care and data entry into the National Vascular Registry. As far as possible these procedures should take place in the hub on planned lists. The advantages this offers in terms of improved outcomes and clinical governance outweigh the disadvantages of transferring high-risk patients.

Minor Amputations & Diabetic foot

Depending upon local arrangement with diabetologists and medical beds patients, may be operated on / observed / stay at spoke sites, with adequate consultant vascular surgical input as part of planned ward rounds. In cases of complication and those patients requiring major amputation before or after investigation of arterial supply, transfer to the arterial site should follow planned guidelines and protocols.

The presence of weekly multi-disciplinary diabetic foot clinics at the spoke sites will reduce the need for inpatient stays.

Vascular / Interventional Radiology (IR)

There are a number of reasons for vascular IR work to continue in Non-arterial centres. These include capacity issues in the hub, treating patients closer to home and maintenance of general IR services.

That said, it's important that there are agreed guidelines in place regarding this activity which should, in the main, be restricted to elective day-case procedures under local anaesthetic. Good MDT working as outlined above should oversee cases selection and quality control.

The complexity of cases manageable within this framework is for each network to determine. Clearly complex elective or joint vascular surgery and radiology cases and all emergency cases will require to be performed at the arterial hub.

It is clearly important that vascular cover for this work is agreed, with protocols in place to deal with complications but the responsibility for the care episode i.e. admission and discharge, should lie with IR. This is often a vexing issue, as not always do Vascular IR radiologists have allocated beds with admitting rights.

Inpatient work should ideally be restricted to patients under other specialties eg Renal and Diabetes, whose treatment is discussed with a vascular surgeon, but who remain under their admitting team for overall care.

Radiology departments should ensure the rapid and seamless transfer of images on PACS (particularly 1mm cuts on CT images) or IEP protocols ensured to allow discussion and planning at MDT

There may be the potential of transfer of some elective day case procedures / diagnostic / simple IR procedures from the hub to the spoke centres to maintain elective activity and mitigate capacity issues in the hub at IR level.

MDT working

This is now recognized as a key factor in driving quality of care provision. In order to be manageable within a service the number of MDTs should be rationalized.

Models exist in which units combine all aspects of their work (carotid, peripheral, aortic, vascular access) into a large, single, weekly MDT or, alternatively, have separate MDTs for each aspect. Alternatively there are more than one MDT per week where it is recognised that attendance is variable due to fixed commitments elsewhere. In addition there may be additional commitments to MDT's with renal and as part of the MTC service.

Wherever possible efforts should be made to avoid duplication of MDTs in a single service eg 2 or more separate Peripheral MDTs, as these become difficult to cover and the opportunities to share best practice are lost. The technology now exists to enable multiple site participation at these meetings and efforts should be directed at scheduling any MDTs to enable maximal participation of all those wishing to be involved.

The long-term aim should be that all specialists involved in the vascular service should participate in MDT working with mandatory attendance to at least 50% of the MDT's. A well-structured, well-organized MDT encourages participation and should act as a trigger to revise job plans in order to enable attendance.

Networking arrangements should serve as an impetus to provide structure and documentation from the MDT for clinical governance purposes.

Emergency cover

All emergency vascular patients should be admitted to the hub for review by a consultant vascular Surgeon. All Trusts should have pre-existing systems in place for vascular cover and the only thing that needs to change is that the call will need to be directed to the hub.

Local and regional ambulance services will have to be informed of the changes to vascular practice and should be instructed to change existing standard operating policies to ensure direct transfer of emergency vascular patients to the arterial hub without unnecessary stops or delays at the non-arterial sites.

On occasions where an emergency is identified at the spoke sites after hours, the cover is provided from the hub and requires clear guidelines to avoid delays. The on-call Consultant Vascular Surgeon or deputy / surgical Specialist Registrar must be contacted who will make a decision about the patient's care and hospital in which they will receive a review/treatment.

If in hours, an unforeseen emergency is identified in a non-vascular theatre, and a spoke site based vascular surgeon is available at the spoke site, they may be contacted for assistance.

For an emergency patient on the wards / outpatients or in A&E, the arterial centre and the on call vascular consultant or deputy must be contacted.

In the majority of cases the best outcome will be achieved if the patient is transferred. There will, however, be rare occasions in which it may be necessary for a vascular surgeon to travel to the patient. In such a circumstance the call for assistance should be directed to the hub so that the on call vascular surgeon there can determine the best way in which to deal with the case.

REPATRIATION

The majority of patients are fit to go home directly after treatment and for these repatriation is not a major issue. An outpatient appointment at their local hospital closer to home with their vascular specialist concludes a satisfactory episode of care.

A significant proportion, however, will require prolonged rehabilitation and/or attention to social issues eg following amputation. If at all possible the most ideal solution is for them to be repatriated directly to community care with no repatriation to the acute or intermediate care providers in the spoke sites.

If these patients are repatriated to the spoke site from which they originated their care should be transferred to an appropriate non-vascular specialist eg Stroke, Diabetes, Care of Elderly or an intermediate care provider.

It is strongly recommended that there are **no named vascular beds in spoke sites** as this has serious implications for continuity of care and cover, both in and out of hours.

The emphasis should be on close working between the various relevant agencies and local area teams and commissioners to ensure that patients who have undergone vascular intervention, but are no longer deemed to require an acute vascular bed at the hub, should be transferred promptly along the most appropriate pathway to community based care facility. These should be included in the SOP's of vascular care.

If vascular inpatient beds at spoke sites with junior doctor cover in hours and out of hours and non vascular consultant cover out of hours with vascular consultant cover in hours – transfer may be considered once patient is stable at the hub site at least 72 hours or more post operatively. This is **far from ideal** but it is recognised that this may be the case in some networks. In the event of any problem though immediate transfer is required to the hub arterial site.

Similarly delayed repatriation to an acute care bed at a spoke site 7-8 days post operatively is less than ideal and both these options should be discouraged.

Commissioning arrangements within a network will rapidly recognise and prevent multiple billing generated for a single episode of care for a patient with the spoke site billing for the acute admission, transfer of care to the hub site, the episode of emergency care at the hub site and the subsequent transfer and inpatient post operative care and rehabilitation at the spoke site if inpatient.

Secretarial & administration support

Administrative support is vital in order to support smooth running of the service at spoke sites and to act as an interface with the hub. In general there should be one secretary/PA for 2 consultants.

At the hub site, particularly in networks with more than one spoke site, there should be a network co-ordinator to ensure smooth transfer of patient information, investigations, appropriate booking of theatres lists and utilisation and ensure that there are no theatre cancellations for trivial reasons such as lack of notes and investigations.

Vascular surgeons with commitments to spoke sites should have ready access to a desk and PC and should be able to access IT systems remotely ie hub from spoke and vice versa.

Each acute trust has a different Patient Administration System (PAS) and it is necessary to work towards obtaining a unified record of activity through the integration of specific elements of each system. This long term solution and may result in a data feed from Spoke systems to feed into the Clinical Information System (CIS) at the hub, which will then be made available to all clinicians at all locations requiring access to patients treated within the Vascular Network.

Some do's and dont's

(Some of these are fairly obvious but in practice have been the major reasons for less than optimum working of vascular networks)

- Hub and spoke surgeons are part of the same vascular network and should be considered so by one and all
- Spoke surgeons do not always have the opportunity to attend every MDT, often have fixed commitments at a spoke site that require a limited presence at the MDT with travel time at peak hours, when present, perhaps the opportunity to discuss their patients first should be given.
- Theatre lists at the arterial centre should be distributed fairly and equitably to all surgeons of the network. A fixed operating day every alternate week for two spoke surgeons is often best for job planning.
- Additional theatre capacity that arises from cross cover for consultant of the week / study / annual leave should be shared and offered equitably to spoke based surgeons
- Vascular rotas as such should take into account evenings and timings of commencement of the after-hours on call (6.30 – 7pm) to allow surgeons to complete daytime commitments to the spoke site with time for handover from the on call consultant of the week at the arterial hub with consideration for travel time if required.
- Job plans should also account for travel times between sites and wherever possible sensible job planning should avoid repeated daytime travel back and forth between sites at peak hours.
- Simple things such as a shared office, access to a computer and a secretary both at spoke and hub sites should be mandatory and particularly for surgeons from the spoke site visiting the hub site, should be a priority for the divisional managers responsible for the vascular network
- Similar consideration should be given to parking arrangements at both sites for surgeons travelling back and forth and priority parking permits appropriately issued
- In many a network the vascular surgeons have taken a lead role in shaping networking alliances, rotas and working arrangements. Often vascular IR radiology on account of smaller numbers of consultant staff, have suffered in comparison and it is helpful if the vascular surgical networking arrangements drive or support

similar vascular IR networking based on local policies or additional drivers such as major trauma centres.

- Networking arrangements are new and change often disruptive. Due consideration should be given to consultant vascular surgeons who have had to change to working in unfamiliar hospitals and working environments with new colleagues. Another time, another place and it could apply to anyone.
- Inequality or the perception of differences with superiority at the hub centre or services or surgeons based there should be avoided at all costs.
- In the same token for spoke surgeons working now on split sites, the obvious benefits towards patient care, outcomes and work-life balance with sustainable on call rotas should overshadow the changes to established or historical practice.