



Vascular Surgery Review for Kent and Medway

Case for Change

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Vascular Surgery Review for Kent and Medway

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The NHS Commissioning Board (NHS CB) was established on 1 October 2012 as an executive non-departmental public body. Since 1 April 2013, the NHS Commissioning Board has used the name NHS England for operational purposes.

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1 Executive Summary

Following concerns re the outcomes for patients in England and Wales receiving vascular services a national service specification was implemented in 2013. The standards within the specification were developed through a specialised Clinical Reference Group (CRG) and reflect the best practice guidance of the National Vascular Society 2013.

The key aim of the specification and guidance is to improve outcomes, providing patients with vascular disease with the lowest possible elective and emergency morbidity and mortality rates. The clinical evidence underpinning the specification and guidance recognises the relationship between adequate volumes and improved patient outcomes.

The Vascular Society guidance identifies best practice, which has been adopted within the national specification standards.

The key features relate to:

- Delivering vascular services through a network where one hospital (the hub) provides all the in-patient surgery and the other hospitals (spokes) work in collaboration with the hub to provide out patient services, diagnostic services and, where appropriate, some day case surg
- Minimum population volumes to deliver adequate vascular interventions.
- 24 hour access to specialist care including vascular surgeons, interventional radiologists and specialist nurses, including sustainable on call rotas.
- Access to hybrid operating facilities.
- Specialist clinicians undertaking adequate volumes of core index procedures to ensure consistent safe quality care.

A vascular services review has been initiated across Kent and Medway by NHS England (South) with regard to determining the current position of vascular services and identifying recommendations, if required, to improve the delivery model. The national specification and best practice guidance have been used as the benchmark measure for the review.

The review process is overseen by a Programme Advisory Board which is clinically led and has both external and local clinical expertise representation.

Throughout the review process there will be active engagement with the public and key stakeholders developing the Case for Change, the decision making process and the final recommendations. This will include Listening events, focus groups and a public/patient sub group of the Programme Advisory Board

Key interdependencies will be identified with a particular emphasis on the central relationship with Interventional radiology.

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The aim of the review is to ensure that quality, safe and sustainable vascular services can be delivered now and into the future.

The key recommendations will seek to not only deliver the national specification but also will ensure that;

- Clinical best practice is embedded into the vascular pathway.
- There are additional quality improvements benefits across Kent and Medway including for vascular patients, the health economy, the workforce and other clinical areas/specialities
- The Vascular care model for Kent and Medway attracts, and is delivered by, skilled motivated clinicians across the multi-disciplinary professions; improving both vascular outcomes but also key clinical interdependencies
- Vascular services are sustainable for the future recognising the projected population growth/changes.
- Patients receive an effective pathway from the point of initial symptoms through to their return home.
- The vascular pathway is delivered within a multi disciplinary model effectively utilising the skills of a range of specialised professionals.

The following Case for Change illustrates that Kent and Medway vascular services are not currently operating within the national clinical guidance or service specification.

On this basis there is a need to identify clinically led solutions that can both resolve the non-compliance and ensure sustainable high quality vascular services are equally available for all Kent and Medway residents.

In Kent and Medway arterial surgery is commissioned from two providers, Medway Foundation Trust (MFT) and East Kent Hospitals University Foundation Trust (EKUHFT). Neither of these providers is fully compliant with the specification and a commissioner led derogation is in place for both Trusts. This review addresses that derogation and ensures that the future model can deliver excellence in outcomes.

A significant proportion of Kent and Medway activity (circa 26%) flows into London, mainly to Guys and St.Thomas' Hospitals Foundation Trust. These services are commissioned by NHS England – SE London. This review will describe the detail of the referral pathway both elective and emergency; associated with this activity. It will also consider the patient flow into London within recommendations for the future sustainability and quality of vascular services for Kent and Medway residents.

When referencing the national service specification and the Best Practice Guidance the position in Kent and Medway demonstrates that the key areas of non-compliance relate to:

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- The lack of a vascular network across Kent and Medway. Local pathways appear cohesive however there is a lack of clarity in relation to the pathway into the London network and little evidence of collaboration between The Kent and Medway units.
- The populations currently served by East Kent University Hospitals NHS Foundation Trust and Medway Foundation Trust are both below the required level of 800,000. It is anticipated that the minimum population of 800,000 recommended by the vascular society will rise in the next year or two.
- At both trusts the total volume of activity for some of the core index procedures is either borderline or below the recommended numbers.
- The consultant workforce numbers are currently lower than required and the sustainability of the current vascular surgical and interventional radiology rotas is a concern.
- Some vascular care is delivered at other acute trusts in Kent and Medway through visiting specialists; this includes some surgery and outpatient care. This pathway is currently not clearly defined.

The Case for Change seeks to highlight the current position and the requirement to develop a clinical model that can both resolve the non-compliance issues but also deliver quality improvements.

Following endorsement of The Case for Change by the Programme Board, the review will proceed to assess the possible options that can deliver the improvements agreed as required.

The review will develop a preferred option for approval by NHS England South, Specialised Commissioning. This option appraisal process will consider key issues, variables and impacts.

These will include:

- Understanding population growth and changes
- The vascular pathway from symptom to rehabilitation
- Key interdependencies; interventional radiology, emergency departments, diagnostics and other clinical specialities.
- Workforce issues and interdependencies
- Repatriation of patient pathways.
- Understanding the impact on the Vascular Services finances.

And further issues identified through public, clinical and stakeholder engagement

The Kent and Medway review recommends that there should be no justification for any reconfiguration not to deliver the care standards and key service outcomes specified in NSS and VSGBI 2012 and 2014

The key benefits we expect for patients are:

- Continued improvement of clinical outcomes, in particular lower limb amputation

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- The development of skills and expertise so that patients are better able to manage their condition and recovery.
- A transparent and effective vascular network, ensuring a smooth pathway across Kent and Medway.
- Increased access to outpatient clinics at spoke units.
- Improve sustainability of the existing vascular services, meeting the needs of both current and future patients and populations.
- Clear lines of accountability and clinical governance across the network that puts clinicians and patients at the heart of performance monitoring and service development.
- A sustainable specialist workforce; consultant surgeons, IR consultants, specialist nurses and the wider multi disciplinary team.
- Standardised methods and promotion of best practice across the clinical teams;
- A more productive and efficient service (minimisation of duplication).
- Improved opportunities for training, research and innovation;
- Reduced length of stay for patients and more effective pathway links with community providers to support timely repatriation of patients following surgery.

Conclusion:

The Case for Change establishes that the current vascular services delivered in Kent and Medway, whilst delivering on most of the key outcome measures do not meet the national specification and best practice (Vascular Society) guidelines. These issues relate to the low population volumes, low level or borderline numbers of core index procedures and sub optimal staffing levels across Kent and Medway.

The review's next step will be to develop a register of options to address the issues identified within the Case for Change.

2 Purpose of the Report

The purpose of this report is to highlight the current position and compliance issues across Kent and Medway's vascular services and to recommend to the Programme Board, that they endorse proceeding to an options appraisal review.

The options appraisal review will consider and then recommend to the Programme Board how vascular surgery providers in Kent and Medway should work to meet the criteria outlined in the national service specification, that is being implemented across England, in a way that is safe, sustainable and can deliver quality improvements.

3 Recommendations

1. To recognise that there is a Case for Change if services in Kent and Medway are to comply with the national specification and clinical best practice guidance, ensuring both quality and service sustainability of vascular services.
2. To agree to proceeding with an option appraisal process to identify a consensus agreement on the preferred solution going forward.

4 Background

The scope of specialist vascular services can be briefly summarised as preventing death from aortic aneurysm, preventing stroke from carotid artery disease and preventing lower limb amputation from peripheral arterial disease and diabetes. In 2007 over 65,000 people in the UK had surgery for a problem relating to vascular disease (Vascular Society of Great Britain and Ireland - VSGBI, 2009). The prevalence of vascular disease increases with age meaning that demand for vascular services is likely to increase over time. In addition, there are currently an estimated 3 million people with diabetes in England and this prevalence is increasing; patients with diabetes and vascular disease have a worse outcome, as evidenced by the increasing rate of lower limb amputation in this patient group.

The outcomes from vascular surgery in the United Kingdom have not compared well internationally, with the UK until recently having the highest mortality rates in Western Europe for abdominal aortic aneurysm repair (VASCUNET, 2008). Hence, it is a national priority for the NHS to ensure vascular services are configured in ways that reflect best practice to ensure their safety and quality both now and for years to come.

In 2012 VSGBI published a series of recommendations describing how vascular services should be organised to deliver the best outcomes for patients (Provision of Vascular Services, 2012). VSGBI quality improvement frameworks (QIFs) are also in place for both abdominal aortic aneurysm (AAA) repair and lower limb amputation.

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The NHS AAA Screening Programme has made adopting the AAA QIF mandatory for providers treating patients referred from the programme.

In light of these recommendations NHS England, as the commissioners of specialist vascular services, published a national service specification for the provision of vascular services in July 2013. This specification sets out both the essential components of a specialist vascular service and the clinical outcomes that the service should achieve. A clinical reference group, chaired by Professor Matt Thompson, has developed the national service specifications. Reporting outcomes of all vascular surgical procedures to the new National Vascular Registry will be mandatory from April 2015. A copy of the national service specification for vascular services can be found at:

<http://www.england.nhs.uk/commissioning/spec-services/npc-crg/group-a/a04/>

The national service specification, the Vascular Society guidance and a range of research papers culminate in the conclusion that an arterial centre needs to provide complex aortic endovascular procedures from a dedicated vascular hybrid theatre. This must be supported by 24/7 vascular surgery and 24/7 interventional radiology, bringing together the expertise and experience of key clinicians in these techniques to provide both elective endovascular procedures and emergency procedures such as endovascular repair for ruptured abdominal aortic aneurysm.

This arrangement has the potential to significantly improve the length of recovery and reduce the risk of surgical complications and the risk of mortality compared to conventional open repairs.

Re-organisation of vascular services into networks enables NHS England to commission more resilient and sustainable vascular services.

Since the publication of the national service specification NHS England – South Coast have been reviewing vascular services across Kent, Surrey and Sussex to determine the work needed to ensure local vascular providers comply with the best practices outlined in the service specification. The key elements of which are that providers of vascular services should:

- Serve a minimum population of at least 800,000 people to ensure an appropriate volume of procedures.
- Ensure that highly experienced staff are treating sufficient numbers of patients to maintain competency.
- Have 24/7 on site vascular surgery and interventional radiology on-call rotas that are staffed by a minimum of 6 vascular surgeons and 6 interventional radiologists (individually undertaking a minimum number of interventions).
- Provide access to cutting edge technology including a hybrid operating theatre for endovascular (minimally invasive) aortic procedures.
- Provide a dedicated vascular ward and nursing staff.

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- Have a specialist team to manage patients with vascular disease that includes vascular surgeons, interventional radiologists, specialist nurses, vascular scientists, diabetes specialists, stroke physicians, cardiac surgeons, orthopaedic surgeons, and emergency medicine amongst other specialties to provide a comprehensive multi-disciplinary service.
- Care of patients will be managed through regular multi-disciplinary team meetings, which will occur at least once a week.
- Provider networks will work towards the aim of all leg amputations being undertaken in arterial centres by 2015

Central to national recommendations is the requirement for arterial surgery to be delivered out of fewer, higher volume specialist arterial surgical centres to improve clinical outcomes (in particular mortality rate) and deliver a range of other benefits to patient

The emphasis on high volume specialist units particularly relates to concerns regarding the risks or poorer outcomes associated with a low numbers of cases each year. Nationally there has been a recognition of the need for reconfiguration proposals to deliver sufficient activity per consultant to maintain standards.

Medway Foundation Trust and East Kent Hospitals University Trust are the two current arterial centres in Kent and Medway.

The tables below show, neither of these trusts fully meets the national service specification.

4.1 Specification Standards

The following table represent the status of the current services measured against the national specification of Medway Foundation Trust, East Kent Hospitals University Foundation Trust and Guys and St.Thomas' Hospitals Trust (the main London provider for K&M).

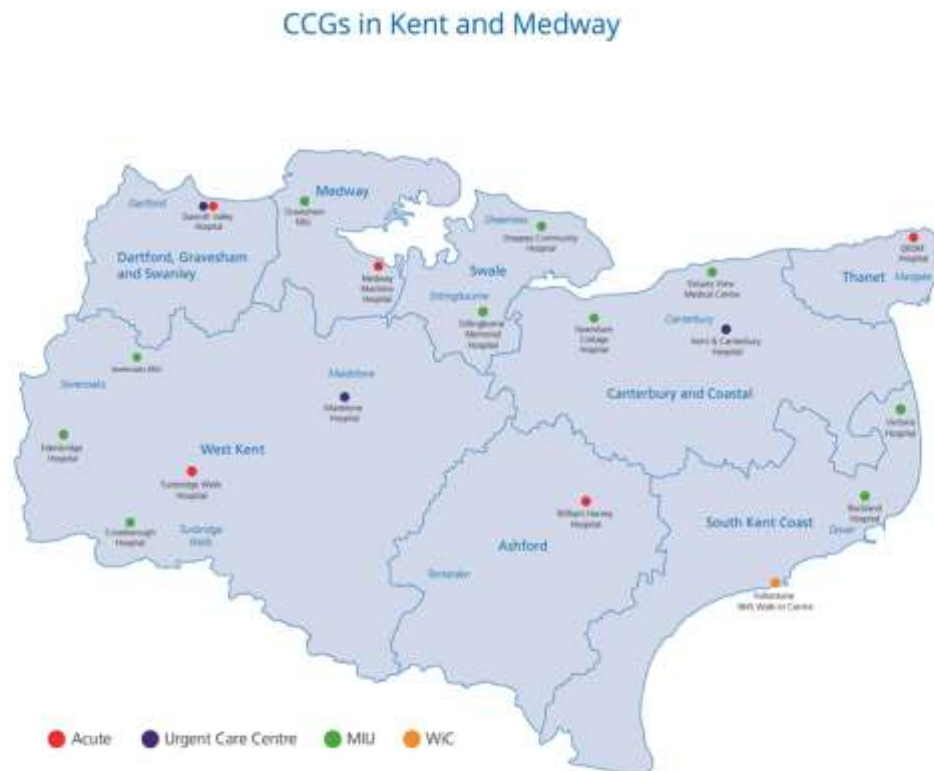
Required	Medway FT	East Kent Hospitals	St Thomas' Hospital	Comments
24/7 MDT	No	No	Yes	
wte vascular surgeons.	No	No	Yes	Recruitment underway in both Trusts
On call rota (1:6)	1:6	1:4	1:6	(April 2015)

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On call Interventional radiology	tbc	tbc	Yes	
AAA screening	Through EK programme	Yes	Yes	The EKHUFT screening programme covers the whole of Kent
Outpatient assessment	Yes	Yes	Yes	
Diagnostics	Yes	Yes	Yes	
In patient non arterial services	Yes	Yes	Yes	
Elective and emergency arterial services	Yes	Yes	Yes	
Day case surgery	Yes	Yes	Yes	
Population currently served; as noted through activity flows	505,569	682,106	450,687 from Kent (plus South London)	Kent Population treated in London: 450,687 Kent population treated outside Kent or London: 86,417
Mortality	Meets the national requirements	Meets the national requirements	Meets the national requirements	Within national tolerance

Table 1

4.2 Map of Kent and Medway with CCGs and Acute Hospital Sites



4.3 Current In Patient Pathway

Vascular Surgery is currently delivered in Kent and Medway at two acute hospital sites:

- East Kent University Hospitals NHS Foundation Trust in Canterbury (EKHUFT)
- Medway NHS Foundation Trust in Medway (MFT)
- Guy's and St Thomas' NHS Foundation Trust - A number of patients travel to London hospitals (most are referred to Guy's and St Thomas NHS Foundation Trust), the majority of the patients are residents in the West and North of Kent; predominantly in the catchment areas of NHS West Kent CCG and NHS Dartford, Gravesham and Swanley CCG.
- A small number of patients across Kent and Medway requiring highly specialised surgical interventions are referred into tertiary providers in London.

East Kent Hospitals Foundation Trust also delivers the AAA screening programme for all Kent and Medway residents.

4.4 Kent and Medway Clinical Commissioning Groups

North Kent CCGs

	Population
Dartford & Gravesham and Swanley CCG	249,000
Medway CCG	268,000
Swale CCG	108,000

East Kent CCGs

Ashford CCG	120,000
Canterbury & Coastal CCG	200,500
Thanet CCG	135,500
South Kent Coast CCG	203,000

West Kent CCG

West Kent CCG	465,500
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Total

1,747,500

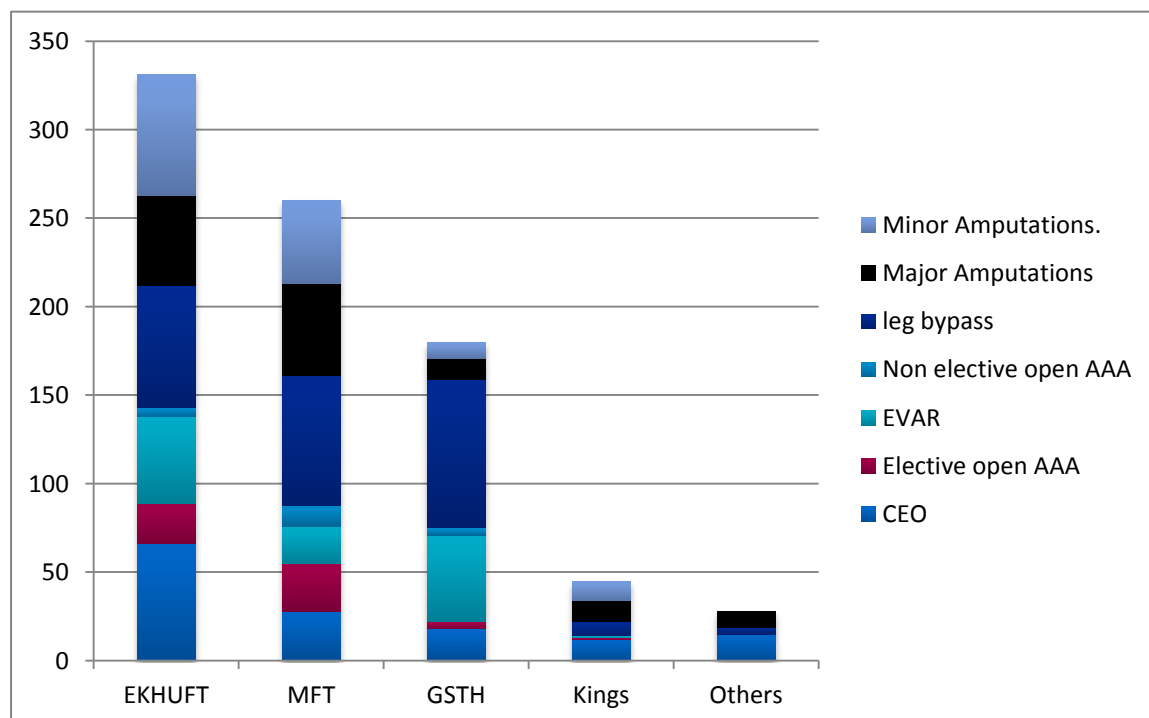
Local Authorities serving Kent and Medway

Kent County Council

Medway Council

4.5 Current Patient Flows

Kent and Medway referral flows for total Core Index Procedures.



4.6 Elective Care Pathway

Patients may enter an elective pathway via a GP referral, a referral from the emergency department, a referral from another secondary care specialty (e.g. diabetes or stroke) or through the AAA screening programme.

If the referral is generated by secondary care (an acute hospital consultant) the patient will either be seen at the same hospital if they provide vascular services or referred to the vascular service used by that consultant. Patients should be given a choice. If the referral is made by a GP or from the AAA screening programme the patient should again be given a choice regarding where they would like to be referred.

For elective patients, the initial referral will normally be for an outpatient appointment. These currently take place at:

- Kent and Canterbury Hospital, Canterbury - (East Kent University Hospitals NHS Foundation Trust)
- Medway Maritime Hospital, Gillingham - (Medway Foundation Trust)
- Pembury Hospital, Pembury - (Maidstone and Tunbridge Wells NHS Trust)
- Maidstone Hospital, Maidstone - (Maidstone and Tunbridge Wells NHS Trust)
- Darent Valley Hospital – (Dartford and Gravesham NHS Trust)
- St. Thomas' Hospital, London –(Guy's & St Thomas' Hospital NHS FT)

Following the outpatient appointment people will undergo diagnostics tests as required at Medway Hospital, Kent and Canterbury Hospital or Tunbridge Wells Hospital and in some cases Guys and St Thomas' Hospital in London, which will include vascular studies (through vascular laboratories) and radiology.

Following diagnostic test results a discussion is held about each patient at a multidisciplinary team (MDT) meeting. If the decision is made to operate, the patient will be listed either for surgery or an interventional radiological procedure (as either a day case or inpatient procedure). The patient will then be required to attend the hospital where they will be having surgery for a pre-operative assessment. At this stage it may also be determined that a high dependency care bed is required and this will be requested.

Currently surgery performed in Kent and Medway is provided by East Kent University Hospitals NHS Foundation Trust at Canterbury and Medway NHS Foundation Trust at Gillingham. The majority of out of area surgery takes place at St. Thomas' Hospital, London.

Following elective surgery patients recover in the hospital in which they had their surgery. They will then be discharged home or to a community provider (if further rehabilitation is required or if there are further co-morbidities or social issues).

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This Table illustrates where outpatient clinics are held and where day surgery and major surgery is undertaken in Kent and Medway.

Hospital Site	Major Surgery	Day Surgery	Out patients	Diagnostics	Comment
EKHUFT - KCH	Yes	Yes	Yes	Yes	
EKHUFT - WHH	No	No	Yes	No	
EKHUFT - QEQM	No	No	Yes	No	
MFT - MMH	Yes	Yes	Yes	Yes	OP also at Maidstone & Sheppey and Gravesend.
MTW - Tunbridge Wells Hospital	No	Yes	Yes	Yes	Surgeon joint appointment with GSTT
MTW - Maidstone Hospital	No	No	Yes	No	
Dartford & Gravesham - DVH	No	? Yes	Yes	Yes	Surgeons joint appointment with GSTT

Table 3

4.7 Emergency Pathway of Care

Patients may present as an emergency either via ambulance or through self-presentation to the emergency department. In general, ambulances will take patients to the closest hospital, which may then require an onward transfer to a hospital providing vascular surgery.

Following emergency surgery patients recover in the hospital in which they had their surgery. They will then be discharged home or to a community provider (if further rehabilitation is required or if there are further co-morbidities or social issues).

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Following discharge they will receive ongoing care/monitoring at their most local hospital that provides vascular service (hub or spoke).

Patients in Kent and Medway who call an ambulance in an emergency will generally be transferred to the nearest vascular surgical site that has an available bed. The Ambulance Trust may take the patient to the nearest ED unit for stabilisation and assessment before transferring to the arterial centre depending on local protocols.

For surgical emergencies it is usual practice for East Kent residents to be transferred to Kent and Canterbury Hospital in Canterbury and West and North Kent residents to be transferred to Medway Maritime Hospital in Gillingham.

Patients from some parts of West Kent, in particular Tunbridge Wells, Tonbridge and Sevenoaks and patients from the North Kent area around Dartford and Gravesham will be transferred directly to St. Thomas' Hospital

If a patient is already at The William Harvey Hospital or Queen Elizabeth the Queen Mother Hospital in East Kent they will be transferred to the EKUHFT site for emergency surgery.

Patients already at Maidstone Hospital will be transferred to Medway Hospital.

Patients already at Darent Valley Hospital or Tonbridge Hospital will be transferred to St Thomas' Hospital.

The South East London vascular surgery network is now established and is in the final stages of implementation which will be completed this year (2015). This will result in all referrals being assessed and, if appropriate, undergo surgery through the MDT at St. Thomas' Hospital.

The Kent activity is undertaken through a Service level Agreement (SLA) between Maidstone and Tunbridge Wells NHS Trust and St. Thomas' and Dartford and Gravesham NHS Trust and Guy's and St. Thomas Hospital Foundation Trust. This includes diagnostics, outpatient clinics and day surgery in Kent and London, as required and in patient surgery at St. Thomas' Hospital.

The London providers also undertake fenestrated grafts for complex aneurysms for all Kent and Medway residents and provide clinical advice and support to the Kent and Medway units as required.

Guy's and St Thomas' Hospital Foundation Trust

Guys and St. Thomas' Hospitals Trust are fully compliant with the national specification and Vascular Society guidance.

Currently there is:

- One consultant vascular surgeon joint appointment at MDT with another being actively considered.
- Two consultant vascular surgeon joint appointments at D&G.

This SLA operates under a hub and spoke network model.

For residents in the Tunbridge Wells and Tonbridge area they may not meet the recommended of one hour emergency travel time when travelling to St. Thomas’.

King’s College Hospital Foundation Trust

Kings College Hospital Trust currently undertakes a number of core Index procedures for resident of Kent. This is due to historical referral pathways. This will change as the SE London network is fully established and all arterial surgery is undertaken at St Thomas’.

4.8 Referral Pathways

Previous Kent and Medway strategic planning reviews identified the two current vascular surgical sites, MFT and EKUHFT as the centres for the Kent and Medway population. Practice has demonstrated that a proportion of the total Kent and Medway surgical activity has flowed into the London hospitals rather than MFT or EKUHFT since 2011.

It is not possible to definitively determine the reason for the current referral pathways. They will include patient choice, GP referral choice, historical referral patterns, clinical relationships, visiting consultant arrangements and joint appointments.

These patient flows predominantly relate to patients living in and around Tonbridge, Tunbridge Wells, Sevenoaks, Dartford and Gravesham (see map –page 10).

5 Core Information and Standards

5.1 National Service Specification

The National Specification for Vascular services (2013/14) notes that 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.

Key features of the national specification include:

- All Trusts delivering vascular services must belong to a provider vascular network
- Arterial surgery should be delivered in an arterial centre
- The pathway for vascular services to include; Diagnosis /Assessment /Outpatient activity / In patient activity / Day case activity / Rehabilitation care.
- Non arterial surgery and day care should receive specialist vascular care locally with agreed protocols including emergency transfers to the arterial centre.
- Adequate population volumes; A minimum population of 800,000 would be appropriate but for a world class service a larger catchment area will be required.

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- Adequate volumes of core Vascular procedures.(> 60 AAA procedures, > 50 Carotid Endarterectomies and commensurate lower limb procedures)
- 24/7 arterial surgery and vascular interventional
- 24/7 Interventional radiology available
- Acceptable on call rota requirements, ie no less than 1;6.
- A minimum of 6 Arterial surgeons and Interventional radiologists..
- Provision of Vascular surgery by specialist vascular surgeons.
- Provision of Vascular Interventional Radiology by specialist IR consultants.
- Provision of Vascular service by a specialist Multi disciplinary team.

5.2 The Vascular Society

The Vascular Society has published guidance on the Provision of Vascular services (2012). The primary objective of the society guidance is to *“provide all patients of vascular disease with the lowest possible elective and emergency morbidity and mortality rates in the developed world. This will be achieved by modernising services to deliver world class care from a smaller number of high volume hospital sites.”*

Key recommendations of the Vascular Society guidance include:

- Recognition that It is no longer acceptable:
 1. For emergency vascular care to be provided by generalists who do not have a specialised elective vascular practice.
 2. To provide elective or emergency vascular cover outside a fully centralised service or a formalised modern clinical network with a designated single site for all arterial interventions providing a 24/7 on-site service.
 3. For the vascular specialist to be providing emergency general surgical cover. In addition, vascular surgeons should not be expected to provide elective general surgical services. (Occasionally some surgeons will undertake specific procedures to maintain competencies directly related to local service needs, but this should be the exception.)
- Networks, involving arterial intervention at more than one site, often result in a reduction in the quality of care and increased mortality for patients in out of hours periods. For this reason, current strategies for the provision of vascular care require that all arterial interventions should be performed on a larger volume hospital site, with intervention provided at these hospitals by vascular surgeons and interventional radiologists from both the central and network hospital sites. This allows for 24/7 patient care and the expeditious treatment of any complications which may occur.

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- Services should be organised in a model that allows reasonable elective activity alongside acceptable on call consultant arrangements. This should result in small units creating a modern clinical network where a designated single centre performs all elective and emergency arterial interventions.
- Facilities must be set up for 24/7 provision, supported by 24/7 critical care, dedicated vascular wards and endovascular theatres.
- Minimum procedure volumes are recommended; > 60 AAA procedures per unit with a minimum population of 800,000. Minimum 10 per surgeon.
- Hospitals providing vascular services should know and audit their AAA mortality aiming for elective mortality of 3.5% (end of 2013) and should regularly review the mortality morbidity rates of the Specialists.
- Specialists undertaking aortic interventions should submit their activity to the National Vascular Register
- Specialist nursing care of vascular in-patients , combining aspects of general surgical nursing, critical care, limb and wound assessment, tissue viability, wound care, rehabilitation, care of the disabled and care of the elderly.
- A ward dedicated to the care of vascular patients is essential to ensure an appropriate skill mix of nurses who have been specially trained in the care of vascular patients
- Emergency assessment and treatment should be available within one hour of travel to a recognised vascular unit in most locations in the UK. 95% of patients should be triaged, referred and have arrived at the vascular unit within two hours arrival at the spoke hospital.

The full document can be found at:

<http://www.england.nhs.uk/wp-content/uploads/2013/06/a04-spec-vascu-adult.pdf>

5.3 Core Index Procedures

There are many conditions that require the services of a vascular surgeon and/or an interventional radiologist.

A core set of index procedures for vascular surgery have been agreed and are:

- Elective Abdominal Aortic Aneurysm repair (inc EVAR)
- Emergency Abdominal Aortic Aneurysm
- Carotid Endarterectomies
- Leg Arterial Bypass
- Major Amputations
- Minor Amputations

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As well as the core index procedures the review is looking at key interdependencies, in particular with emergency departments, renal services, and lower limb ischaemia management. However central to promoting quality and sustainability it is important to understand the number of core procedures being delivered at each surgical site.

Data re the Core Index Procedures is presented from three data sources – 2013/14:

- Data submitted by individual surgeons to the National Vascular Registry (NVAR)
- Secondary Uses Service (SUS); this is the single, comprehensive repository for healthcare data in England and is submitted by each trust
- The Trust's own data.

The data capture was agreed by the lead clinicians at MFT and EKHUFT and the data lead for the programme board and accepted by the Programme Advisory Board. The national specification requires a minimum number of procedures per centre and per consultant for AAA procedures.

- Abdominal Aortic Aneurysms 60 per annum.
- Carotid Endarterectomies 50 per annum.
- Lower limb bypass Commensurate numbers
- Per consultant per year 10 AAA emergency and elective procedures; commensurate lower limb and carotid procedures.

Kent and Medway Activity 2013/14.

Total activity for Kent and Medway 2013/14:

EKHUFT and MFT; 591 Others; 306 **Total Kent and Medway activity; 897**

Index Procedure	East Kent University Hospital FT			Medway FT		
	NVAR	SUS	Trust	NVAR	SUS	Trust
Carotid Endarterectomy	66	60	61	28	29	28
AAA Electives , open	23	tbc	tbc	27	28	26
EVAR	49	57	57	21	22	22
AAA Non elective, open	5	4	4	12	11	13
Total AAA's	77			60		
Leg bypass		69	69		73	74
Major amputation		51	53		52	52

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Minor amputation		68	68		47	48
Total core index numbers	331				260	

Table 4

Kent and Medway- Out of Area Activity – 2013/14

Index Procedure	Guys and St Thomas'	King's College Hospital	Brighton and Sussex	Others
Carotid Endarterectomy	18	12		15
AAA Elective open	4	1		
EVAR	49	1	1	
AAA Non elective open	4			
Total AAA's	57	2	1	
Leg bypass	84	8	4	4
Major amputation	12	12		9
Minor amputation	9	11		48
TOTAL	180	45	5	76

Table 5

5.4 Reviews and Literature

A number of vascular reviews have been undertaken across England and Wales in recent years.

The key driver behind the reviews have related to the publication of the national specification, the Vascular Society guidance and the increasing evidence of the relationship between high volumes, specialist skills and improved patient outcomes.

These include:

- Yorkshire and Humber NHS 2010.
- NHS England South / NHS Sussex 2011
- NHS Wales, 2012.
- NHS England South/NHS Bath, NE Somerset and NHS Wiltshire 2013

Key recommendations from the above reviews include;

Delivery within a network model with centralised arterial surgery.

- Adequate population volumes.
- Adequate intervention volumes.
- 24/7 access.
- Specialist Surgical and IR consultants.

The drivers of the reviews all relate to improving patient outcomes and delivering quality through delivery of the core standards and the ability to deliver resilient sustainable services for the future.

6 Additional Information

The key for system / service resilience is to actively identify and manage risks that could disrupt normal service (NHS Commissioning Board, 2013). In the context of vascular surgery, there is a need to ensure sufficient capacity (both physical resources as well as human resources) is available and systems are in place to secure the best patient outcomes and experience even in difficult circumstances.

6.1 The Case for Concentrating In-Patient Surgery

The relationship between the volume of cases undertaken and the outcomes achieved has been demonstrated most clearly for elective abdominal aortic aneurysm repair.

A meta-analysis¹ based on over 400,000 elective AAA repairs world-wide concluded in favour of higher volume centres (Holt, Poloniecki, et al., 2007). More recent research by Holt et al. also found an 8.5 per cent mortality rate in lower volume centres compared to 5.9 per cent in higher ones (Holt, Poloniecki, & al., 2010). Holt et al have also found mortality differences between hospitals in the lowest and highest volume quintiles of providing ruptured abdominal aortic aneurysm repair of up to 24% (Holt, Karthikesalingam et al., 2010).

There is also evidence that similar relationships affect the performance of other vascular procedures including lower limb arterial reconstruction and carotid endarterectomy (Karthikesalingham, et al., 2010; Moxey, et al., 2012).

This indicates that the risk of dying decreases when patients receive their surgery from teams that see higher numbers of patients and it is for this reason the service specification sets a requirement that vascular networks must serve a minimum planning population of 800,000.

¹ In statistics, a **meta-analysis** refers to methods focused on contrasting and combining results from different studies, in the hope of identifying patterns among study results, sources of disagreement among those results, or other interesting relationships that may come to light in the context of multiple studies.

6.2 New Technology

A major driver for change has been the introduction of minimally invasive endovascular techniques (i.e. the use of interventional radiology to treat arterial disease thereby avoiding open surgery and reducing recovery time). Such techniques have reduced mortality, morbidity and hospital length of stay (EVAR1 Trial, 2005), but they require specific infra-structure, such as hybrid operating theatres that are equipped with advanced medical imaging devices (CT, MRI), which are dependent on an adequate case volume (higher number of patients) to ensure their safe introduction.

Evidence suggests that high volume centres are more likely to adopt new technologies (Dimick & Upchurch, 2008) and NHS England is keen to foster innovation and constant improvements in how we deliver healthcare.

Hence, an arterial centre needs to provide complex aortic endovascular procedures from a dedicated vascular hybrid theatre supported by 24/7 vascular surgery and 24/7 interventional radiology, bringing together the expertise and experience of key clinicians in these techniques to provide both elective endovascular procedures and emergency ones, such as endovascular repair for ruptured abdominal aortic aneurysm. This arrangement has the potential to significantly improve length of recovery and reduce risk of surgical complications and risk of mortality as compared to conventional open repairs

6.3 Travel - The impact of Travel Distance and Times:

Kent and Medway is centrally well served by three motorways:

- The M2 serving the East and North of the county
- The M20 serving the West and North/West of the county
- Part of the M25 across the North West, serving the road networks.

Public transport routes are generally good with rail services covering most of the region. There are examples of rural road access in particular across the west and south west of the county increasing both ambulance and public transport times.

The VS recommendation is that services should be arranged to minimise transfer times (target less than one hour). 95% of patients should be triaged, referred and have arrived at the vascular unit within two hours of arrival at the spoke hospital.

A mapping of emergency travel times shows that all Kent and Medway residents are able to access the two current providers within the recommended 60 minutes. London hospitals are able to receive patients within the hour if they live in the far north and North West of the county. Travel times and distances are always an understandable concern for patients with some perceptions that travelling further for surgery will put patients at greater risk.

A number of studies have been published reporting no [statistically] significant impact of distance on mortality for vascular surgery.

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For example, Cassar et al. studied nearly a decade of records from Raignor hospital in the Scottish highlands and reported no significant difference in the community mortality rate after ruptured aortic aneurysm between patients living within or further than 50 miles from the hospital (Cassar et al., 2001).

Several further studies attempting to determine the impact of distance on mortality have showed similar results.

Butler et al. (1978) studied the impact of regional hubs delivering vascular surgery on mortality outcomes and found no significant difference in operative mortality following ruptured abdominal aortic aneurysm (RAAA) between patients admitted from the local catchment area (58%) and those transferred from other centres for surgery (54%). Similar results were reported in studies by Fielding et al. (1984), D'Sa Barros (Barros, 1990), van Heeckeren (1970), Amundsen et al (1989), Farooq et al. (1996) amongst others, all reporting that centralisation does not prejudice the community mortality outcome for RAAA.

In terms of patients attitudes towards travel for specialist services, an extensive study by Holt et. al (2009) reported that 237 of the 258 patients questioned (92 percent) stated a willingness to travel for at least one hour beyond their nearest hospital. Patients also had a stronger willingness to travel to access services with lower peri-operative mortality, stroke and amputation rates, routine availability of EVAR and an experienced surgical team as opposed to other considerations such as length of stay, seeing the same doctor every time, waiting lists and car parking. The authors of this paper strongly endorsed the idea of concentrating vascular surgery in regional centres to achieve the desired mortality outcomes.

The All Party Parliamentary Group Review of vascular services (March 2014) considered the interrelationship with lower limb amputations and foot care and noted as good practice for vascular centres the need to:

- .Improve use of MDT in vascular networks.
- To establish vascular centers of excellence that can provide 24/7 care.
- To publish amputation rates and outcomes

6.4 Acute Hospital Providers

Across Kent and Medway there are four acute Hospital Trusts with a total of seven sites:

- Dartford and Gravesham NHS Trusts
 - Darent Valley Hospital. (DVH) - Dartford
- East Kent University Hospitals NHS Foundation Trust (EKUHFT)
 - Kent and Canterbury Hospital (KCH) - Canterbury
 - Queen Elizabeth Queen Mother Hospital (QEQM) - Margate
 - William Harvey Hospital. (WHH) - Ashford
- Maidstone and Tonbridge Wells NHS Trust (MTW)

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- Pembury Hospital – Near Tunbridge Wells
- Maidstone Hospital - Maidstone
- Medway NHS Foundation Trust (MFT)

Two of the sites, MFT and EKHUHT provide vascular surgical services (as arterial centres) and Kent and Medway residents also access two central London hospitals (Guys and St. Thomas' Hospital Foundation Trust and King's College Hospital Foundation Trust).

Dartford and Gravesham NHS Trust at Darent Valley Hospital and Maidstone and Tunbridge Wells NHS Trust at Tunbridge Wells Hospital, Pembury are also providing a range of vascular care including small numbers of day surgery through joint appointment specialist vascular consultants.

6.5 Health Needs Assessment.

The current K&M population is 1,747,000. (2014 CCG profiles)

The Kent and Medway population currently grows by 8%, in line with nationally,

- Population projections for the period 2013 to 2020 show the greatest increase in the older age bands;
 - 17% within the 65-74 age band
 - 22% within the 75-84 age band
 - 29% within the 85 plus age band
- There are some key housing developments anticipated. This includes the garden city development at Ebbsfleet in the North of the county with a maximum of 10,000 houses planned.
- There is also a planned theme park development due to open in 2020 on the Swanscombe Peninsula, expected to bring 27,000 new jobs and families to the area.
- The population projections relating to these developments are currently being worked through however this will be more relevant in the younger age groups ie below 65 years of age.
- The recommended population base (National Service Specification and Vascular Society guidance) needed for an adequate number of cases for a viable center is 800,000 and the Vascular Society has indicated that this will increase to between 1 million and 1.2 million within the next few years.
- Allowing for the proposed housing expansions in North Kent are anticipated to see a 26% population growth for the DGS population. This is forecast to the younger age group.
- Currently 26% of the total Kent and Medway activity flows into London.

7 Key Findings

7.1 Self-Assessment of Current Kent and Medway Providers.

EKHUFT and MFT completed an assurance self-assessment in December 2014, these illustrate compliance across a number of the standards within the specification, including outcome measures.

The key issues noted in the assessments were:

- Mortality and outcomes identified as within the national requirements; The one exception relates to Lower Limb bypass. (Further work could be considered to understand the relationship between the low number of Carotid Endarterectomies and the 30 stroke mortality rates.)
- The numbers of Core Index Procedures were borderline in most cases. Carotid Endarterectomies low in MFT
- The population numbers did not meet the requirement for either unit.
- MDT cover is difficult to achieve over 7 days, particularly in relation to nursing.
- 24/7 consultant cover, Surgeons and Interventional Radiologists.
- Consultant rotas , concerns re sustainability currently; EK 1:4 and MFT 1:6
- There has been no self-assessment undertaken by either MTW or DVH

As can be seen the key issues for both Trusts relate to low/borderline volumes and across Kent and Medway low workforce numbers and the ability to deliver 7 day specialist services. Neither if these can be resolved internally by the individual Trusts. .

7.2 Activity Data

The data analysis of the index procedures illustrates that the current providers are achieving the total AAA volumes although these are generally borderline.(in some instances only just) but not the Carotid Endarterectomies at MFT.

The Trusts assurance submission in December 2014 show mortality rates at the 3.5% recommended for 2013 and are within the tolerance of the morbidity targets with the exception of lower limb amputations.

In summary:

- The current total Kent and Medway activity is borderline for meeting the minimum requirements for AAA procedures.
- Carotid Endarterectomy levels at MFT are routinely below the minimum requirements

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- Carotid Endarterectomies have historically been undertaken at MTW and D&G but now confirmed this has ceased.
- Mortality rates are within the 2013 recommended level of 3.5%, further improvements are likely to be required in the future.

Currently a significant proportion of activity from north and west Kent goes to Guys and St Thomas' hospital with 75 interventions (Carotid endarterectomies / AAA's) as compared with 88 at MFT and 143 at EKHUFT. Repatriation of this activity could give some stability to the existing Kent and Medway providers in particular MFT.

Review of commissioning intentions has advised that there is no imperative to alter patient flows or impact on patient choice.

Patient flows to London may have initially been driven by historic consultant relationships; however there is now a formal pathway in place through a service line agreement between St.Thomas' hospital and D&G and MTW.

7.3 Outcomes

Reported outcomes measures lack validity for making comparisons between Trusts and clinicians. It is noted that the data is not statistically significant and that it is an unreliable source upon which to make recommendations. This is why the Vascular Society has focussed on critical volumes of activity as the key quality measure.

It is also important to note that outcomes are increasingly reported by individual vascular surgeons as well as per Trusts and need to be considered within this context. None of the centres providing care to Kent and Medway residents are outliers and there are examples of good performance.

7.4 Population Data

The population data illustrates that currently neither arterial centre is meeting the minimum 800,000 requirement.

If all of the west and north population was included then the total would exceed the required 1.600,000 across Kent and Medway ie 800,000 per site.

However the referral flows would suggest that it is unlikely that any of this additional activity would flow to East Kent and therefore there would continue to be one site in K&M not achieving the minimum levels. This could only resolved by forcing the distribution of some West Kent activity into East Kent.

Repatriation of this activity would require a commissioner led mandate for referral pathways and could not interfere with patient choice to a recognised, compliant provider. The K&M Vascular review will address this issue within the options appraisal process.

The population flowing into London equates to almost 50% of the West Kent population and 94% of the North Kent population (Dartford and Gravesham).

There are clear indications that the minimum population volumes will increase in the near future, likely to exceed 1,000,000 per arterial centre.

7.5 Pathway Analysis

Currently there is no vascular network in place for Kent and Medway and the best practice model of a front door access to vascular care is not clear or transparent.

The local pathways to the current Kent and Medway arterial centres are well versed and recognised.

The geography of East Kent naturally drives patients in Thanet and parts of South Kent Coast to the East Kent centre whether for elective or emergency care as accessing sites beyond is both difficult and outside of recommended one hour travel times.

Historic relationships and current visiting consultants have contributed to a pathway in west and north Kent that engages with Guys and St.Thomas' in London.

There is an SLA in place re both the elective and emergency pathways for patients in Tonbridge, Tonbridge Wells , Sevenoaks, Dartford and Gravesham. This does not appear to be easily recognised and requires clarification and assurance re quality and sustainability.

Nationally In patient surgery accounts for around twenty per cent of activity within the arterial sites. The current numbers of Kent and Medway residents impacted by any potential reconfiguration of Vascular Inpatient services is around 585.

Out patient access is available at both the in-patient sites across Kent and Medway and in London.

7.6 Workforce

High quality vascular services are delivered through a wide range multi disciplinary team. This includes specialist consultants, Interventional radiologist, nurses, therapists laboratory scientists and anaesthetists. The Case for Change focuses on the requirement for Consultants, nurses and interventional radiologists.

However in developing options the wider MDT will be fully considered.

Given the range of specialist staff required in Arterial Centers, and the relative shortage in many of these professional areas, the future model of vascular networks needs to have a realistic and deliverable overall workforce plan.

High quality vascular units, that are large enough to provide sub-specialisation and high throughput, are more likely to recruit high calibre staff and improve retention.

with robust workforce plans identified.

7.7 Vascular Consultants.

An arterial center (serving a 800,000 population) should have 6WTEs Vascular Consultants, equating to 60-72 PAs of activity.

An individual on the vascular rota, but undertaking little elective work (ie less than 4PA), cannot reasonable be considered a vascular specialist. None of the current

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consultants in Kent and Medway undertake less than 4PA. All patients referred to the vascular service at MFT and EKHUFT are seen by vascular specialists.

In Kent and Medway there are specific vascular surgical on call rotas in place in both arterial centres. This meets the guidance of 1:6 at MFT and is 1:4 at EKHUFT, this may raise concerns re sustainability across Kent and Medway.

	EKHUFT	MFT	Comments
Pas per individuals	Cons 1; 11.5 Cons 2; 12 Cons 3; 12 Cons 4; 10	Cons1;12.5 Cons 2; 12.5 Cons 3;11.5 Cons 4; 10.5 Cons 3; 8.0	
Retirements due in next five years	2 posts . 1 in 2 years 1 in 2 to 5 years	None anticipated	
Locum in place	Yes, shared with general surgery.	recruited pt time post, June 15	
Dedicated Vascular rota	Yes. 1:4	Yes 1:6	
Dedicated IR rota	Yes	Yes	To confirm ratio and requirement for non vascular pts.
Dedicated vascular ward	Yes	Yes	
Dedicated specialist nurses	Yes, supporting the wards, Consultant clinics and specialist nurse Out Pt clinics	Yes detail TBC	No Specialist nurses covering the weekends.

Table 6

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The specification requires 10 AAA elective and emergency procedures and commensurate other core index procedures to be undertaken by individual consultants per annum. Not all consultants across Kent and Medway are compliant with this recommendation.

No Vascular patients are seen by non Vascular specialist consultants in Kent and Medway.

7.8 Vascular Interventional radiologists.

Vascular Interventional radiologists are a core component of the vascular service, achieving a sustainable vascular rota whilst not impacting on the wider non vascular interventional radiology is difficult. Both Kent and Medway providers have specialist vascular Interventional radiologists, these posts also support non vascular IR.

*A more detailed review of the impact on interventional radiology is underway as part of the review.

7.9 Vascular Nurse Specialists.

Vascular Nurse Specialists are increasingly important in the delivery of vascular services, especially in Non Arterial Centres. VSGBI 2014 specifies that each NAC should have at least one VNS dedicated to covering the work at each site, in addition to those required at ACs. The role will need to be reviewed and developed to support consultant colleagues in the vascular network, and the VNSs will be the principle point of liaison in an effective network model.

The current Kent and Medway vascular centres both have specialist vascular nurses, they do not provide a service over the weekends.

7.10 Vascular Multi Disciplinary Team.

The wider Vascular team needs to be considered within the context of the review this will include;

- Vascular Multi Disciplinary team Vascular technologists and scientists
- Diabetic and non-diabetic podiatrists and diabetic foot care MDTs (19,20).
- Radiographers
- Physiotherapists
- Occupational Therapists
- Critical Care Paramedics
- Pharmacists

7.11 Travel Times

Travel times mapping for emergency access illustrates that the current two sites are able to meet their existing patient flows within the recommended one hour travel time. Both MFT and EKHUFT are accessible to all K&M residents within 45 minutes by emergency conveyance. The London sites are only accessible within an ambulance travel time of one hour in some parts of north West and far north Kent.

The VS recommendation is that services should be arranged to minimise transfer times (target less than one hour). 95% of patients should be triaged, referred and have arrived at the vascular unit within two hours of arrival at the spoke hospital.

7.12 Critical Co-dependencies

Vascular patients are often critically ill, can have multiple other medical conditions, and need timely access to specialised care from a wide range of other clinical services. It is vital to understand the implications of all these clinical co-dependencies in the safe planning of inpatient care of arterial, and non-arterial centres.

The SEC 'Clinical Co-dependencies of Acute Hospital services '2014 suggest which services should be collocated and/or have close visiting relationships.

Key co-locations for vascular services include;

Interventional Radiology, Accident and Emergency, Critical care, general surgery and acute/ general medicine, hyper acute stroke unit and acute cardiology. The key diagnostics are require to be co-located ie; MRI, CT, X ray and ultra sound. Also advised is colocation with Physiotherapy, general anaesthetics and pathology services.

The Vascular Society guidance advises;

- Co-location with interventional radiology. The impact of any reconfiguration must include IR and an understanding and safe clear pathways for management of non vascular IR
- Interventional radiology (IR) is a critical service for delivering diagnosis and treatments to vascular patients, working in partnership with the vascular surgical service. There are significant issues relating to the centralising of IR and delivering 24/7 IR rotas, including manpower, and the sustainability of non-vascular IR services in non-arterial centres, which need to be recognised and addressed
- The Vascular Society guidance and the SEC Co-dependencies both report advise that it is desirable to locate alongside Accident and Emergency departments and a robust critical care unit. External clinical advice to the review notes that the above is desirable but not essential. However a major trauma unit must have vascular services available on site. Where there is no co-located ED then there must be clear protocols and pathways in place to manage vascular

patients. This must include clinically agreed safe pathways for patient’s who present with abdominal pain and collapse covering timely triage and transfer protocols.

- Consideration of the impact on the education and training needs of vascular trainees must be fully considered.
- If a renal unit is present within a site then vascular services should be co-located.
- It is desirable for admitting stroke units to have easy access to vascular services including IR.
- For specialist services such as renal, Stroke and Cardiac close working relationships must be in place and evident.

7.13 Diabetic Care

Current performance for diabetes related amputations shows that four of the eight Kent and Medway CCGs are above the national average.(0.9) ranging from between 1.1 to 1.6.

The establishment of robust multidisciplinary foot care teams, universally across Kent, Surrey & Sussex is becoming an imperative to ensure that changes through, vascular reconfiguration, do not increase the number of amputations across Kent, Surrey & Sussex due to poor service access.

Specialised Commissioning are being asked, by the Strategic Clinical Network Diabetes Clinical Advisory Group to ensure consideration and clear planning is undertaken to ensure that access to vascular services within 24 hours for an emergency foot problem when vascular reconfiguration plans are developed and implemented.

7.14 National Specification – Kent and Medway Position

Summary of findings

Key indicators/measures	Current K&M position	risk
1 hour travel time for emergency AAA/ 2 hour 95% target for triage, transfer and arrive	Current sites meet this across K&M	London hospitals only meet this in some parts of K&M
Population 800,000	Neither Trust meets this currently	Repatriating west and north Kent activity required. This will impact on patient choice and will still leave EKHUFT below target.

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Total index procedures	AAA's achieved CE's below at MFT	Achievement is generally borderline, increasing the risk of ad hoc practice
24 hr consultant cover	Current sites meet this	Pressure on rotas esp EK. Retirements due in the next 2 to 5 years , concern raised re ability to recruit under current configuration.
Vascular network	Not currently in place	Impact on workforce planning/succession plans. Potential impact on the ability to enhance service provision in relation to innovation
Mortality rates	At 2013 recommended levels 3.5%	Unclear re further improvements required.
Morbidity rates	Generally good , only exception lower limb amputations	Amputation outcomes in K&M poor. Need to understand the impact of low rates of Carotid Endarterectomies on the 30 day stroke mortality rates.
Nursing cover	Not 7 day cover	Potential impact on the ability to develop practice

Table 7

The findings confirm that:

1. The current arterial centres in K&M are not compliant with the national specification and VS best practice guidance.
2. It is apparent that the pathways of care are not clear across Kent and Medway particularly for residents in the west and north of the county.
3. The reported patient outcomes are good/in line with the national average (currently this has not been evaluated at individual consultant level or in relation to interdependent clinical pathways ie diabetes)
4. The current Kent and Medway arterial centres do not fulfil the requirements in relation to population numbers and the volume of core index procedures is not achieved on both sites
5. Access to the two Kent and Medway centres is within the required one hour emergency travel time for the existing patient flows.
6. Access to St.Thomas' hospital in London is outside of the one hour recommended travel time for residents in Tunbridge Wells and Tonbridge.

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7. The workforce requirements are not fully met across Kent and Medway with corresponding pressures on on-call rotas and 24/7 nurse cover.
8. There is concern re the current and future sustainability of the workforce rotas, this will be more pressing in the next 2 to 5 years as retirements come into play.
9. There is currently no vascular network in place in Kent and Medway, pathways will not always be clear and transparent, clinical practice may not be consistent or develop effectively.
10. Concerns have been raised re the financial sustainability of the model; the current level of activity cannot sustain the required workforce levels.
11. Current carotid Endarterectomy surgery practice at non arterial sites is non-compliant with the specification and VS guidance; need to confirm this will stop.
12. Maintaining the staffing levels and the cost related to the development of new innovation and technology in all existing vascular providers would require a significant amount of investment from both the providers and NHS England.
13. The risk of occasional practice may increase, with none of the current providers covering the minimum population base of 800,000 people needed to ensure teams treat sufficient numbers of cases to maintain and develop their skills..
14. Re-organisation of vascular services into networks enables NHS England to commission more resilient and sustainable vascular services.
15. Vascular services working together in networks are able to enjoy the benefit of combining existing vascular and other clinical specialists from all the existing providers within the network so that services can be planned across providers.
16. Sharing on-call rotas would address the shortage of appropriately skilled staff.
17. Vascular surgery trainees could be strategically deployed in the vascular centres to ensure they are exposed to the extensive range of vascular conditions to maximise their learning experience.
18. Interventional Radiology is a key component of the service and needs to be fully explored when considering the planning of Vascular services.
19. A detailed workforce plan across all vascular disciplines, including the impact of and on trainees is required.
20. Need to reflect the K&M strategic picture understanding current financial pressures and Quality concerns.

8 Proposal Benefits

The benefits we expect for patients are:

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- Continued Improvement of the clinical outcomes, in particular lower limb amputation, working towards achieving the best rather than average performance.;
- Development of skills and expertise so that patients are better able to manage their condition and recovery;
- A transparent and effective vascular network, that benefits from shared clinical expertise and clear effective pathways of care..
- Increased access to outpatient clinics in spoke units.
- Improve sustainability of the existing vascular services
- Clear lines of accountability and clinical governance across the network that puts clinicians and patients at the heart of performance monitoring and service development.
- A sustainable specialist workforce; Consultant surgeons, IR Consultants and specialist nurses and the wider Multi disciplinary team..
- Standardised methods and promotion of best practice across the clinical teams;
- A more productive and efficient service (minimisation of duplication and waste);
- Improved opportunities for training, research and innovation;
- Reduced length of stay for patients and more effective pathway links with community providers to support timely repatriation of patients following surgery.

Conclusion:

- The Case for Change illustrates that the current Kent and Medway provision does not fully meet the national specification or Vascular Society guidelines.
- The review recommends that achieving the national standards and VS guidance should be a minimum requirement.
- There should be an ambition to commission for excellence over and above specification; this includes the delivery of excellent sustainable services that enable all K&M residents to benefit from excellent outcomes. To ensure a high performing workforce attracting motivated and innovative practitioners who aim to deliver outcomes at the highest level.
- The Case for Change recommends developing an options appraisal that can consider fully the possible options to make the required changes for both compliance and improved quality.

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- The appraisal process needs to consider all influences and impacts not only to deliver the appropriate recommendations but to ensure sustainability and improvement for both vascular care and other key clinical specialities.
- Local and external clinical leads will be required to ensure that the solutions are clinically safe, viable and equitable across Kent and Medway.
- The development of a network will be required and needs to ensure that all elements of the pathway are considered and fully understood.
- Public engagement and feedback will be central to the development of the options appraisal.

9 Next Steps

- The Case for Change is reviewed at the Programme Advisory Board for agreement.
- The Case for Change is reviewed by the SEC Clinical Senate and amended accordingly.
- Listening events take place through July and August which will raise the public awareness of the case for change and reflect any concerns/queries going forward.
- Development of solutions will involve public engagement and local Kent and Medway and external clinical leadership in a sequence of listening events and focus groups and through the Clinical sub group of the programme advisory Board. This will include the current vascular leads, the wider Multi disciplinary team, clinical commissioners and expert advisors.
- The review will develop a preferred option for approval by NHS England South, Specialised Commissioning. This appraisal process will consider key issues, variables and impacts.
- These will include;
 - Understanding population growth and changes
 - The Vascular pathway from symptom to rehabilitation
 - Key interdependencies; Interventional radiology, Emergency departments, diagnostics, other clinical specialities.
 - Workforce issues and interdependencies
 - Repatriating patient flows.
 - Issues identified through public, clinical and stakeholder engagement
- The Programme Advisory Board will oversee the development of solutions to the issues within the Case for Change to enable the sustainable delivery of vascular services to Kent and Medway residents in line with national best practice.

10 Glossary

Abdominal aortic aneurysm repair	Abdominal aortic aneurysm (AAA) repair is a procedure used to treat an aneurysm (abnormal enlargement) of the abdominal aorta. Repair of an abdominal aortic aneurysm may be performed surgically through an open incision or in a minimally-invasive procedure called endovascular aneurysm repair (EVAR).
Angioplasty	<i>Angioplasty</i> is the technique of mechanically widening narrowed or obstructed arteries.
Arterial surgery	This includes a range of procedures to prevent death from aortic aneurysm, prevent stroke from carotid artery disease, and prevent lower limb amputation from peripheral arterial disease and diabetes.
Carotid endarterectomy	A <i>carotid endarterectomy</i> is a surgical procedure to unblock a carotid artery (blood vessels that supply the head and neck).
Clinical Reference Groups	The specialised commissioning function of NHS England is supported by a devolved clinical leadership model. Seventy-five Clinical Reference Groups (CRGs) covering all prescribed specialised services draw membership from each of the 12 geographical areas in England. CRGs bring together clinicians, commissioners, and Public Health experts with the patients and carers who use specialised services. Members are volunteers who have a particular interest, knowledge or experience of a specific area of specialised healthcare and wish to contribute to its development. They are responsible for preparing national specialised service level strategy and developing specialised service contract products such as service specifications and commissioning policies.
Endovascular stent	An endovascular stent graft is a tube composed of grafting fabric supported by a metal mesh called a stent. It can be used for a variety of conditions involving the blood vessels, but most commonly is used to reinforce a weak spot in an artery called an aneurysm. Over time, blood pressure and other factors can cause this weak area to bulge like a balloon and it can eventually enlarge and rupture. The stent graft is designed to seal tightly with your artery above and below the aneurysm. The graft is stronger than the weakened artery and it allows your blood to pass through it without pushing on the bulge.

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EVAR	See Abdominal aortic aneurysm repair.
Interventional radiology	Interventional Radiology is a medical sub-specialty of radiology utilizing minimally-invasive image-guided procedures to diagnose and treat diseases in nearly every organ system. The concept behind interventional radiology is to diagnose and treat patients using the least invasive techniques currently available in order to minimize risk to the patient and improve health outcomes. These procedures have less risk, less pain and less recovery time compared to open surgery.
Peripheral arterial disease	<i>Peripheral arterial disease</i> (PAD) is a common condition in which a build-up of fatty deposits in the arteries restricts the blood supply to leg muscles.
Public and patient engagement	‘Engagement’, ‘involvement’, ‘consultation’, ‘co-production’ and ‘participation’ are all words that can be used to describe communicating with and listening to patients, carers and members of the public. This ranges from providing information to people about NHS services and commissioning decisions to working with patients and carers at a strategic level so their experiences and insight can be used to shape NHS policy and commissioning decisions.
Service specification	A service specification is a description of what a service should include. For example the number and skills of the staff that provide the service, registration with professional bodies or the environment in which certain procedures and care are carried out (like special thermo-regulated rooms for people being treated for severe burns).
Specialised services	Specialised services generally involve complex procedures that only a few people may have the skills and experience to perform or because they use very specialised, expensive equipment that the NHS simply could not afford to put into every local hospital and/or because the people who need these services are relatively few in numbers, such as very premature babies or people with rare cancers or genetic conditions.
Thoracic aortic disease	Thoracic aortic aneurysms — bulges in the wall of the aorta – are more common than doctors originally thought. If it tears the aorta, the main pipeline for blood from the heart to the body, suddenly bursts, cutting off the supply of life-sustaining blood and flooding the chest or abdomen with blood.

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Vascular studies

Vascular studies are a non-invasive (the skin is not pierced) procedure used to assess the blood flow in arteries and veins. A transducer (like a microphone) sends out ultrasonic sound waves at a frequency too high to be heard. When the transducer is placed on the skin at certain locations and angles, the ultrasonic sound waves move through the skin and other body tissues to the blood vessels, where the waves echo off of the blood cells. The transducer picks up the reflected waves and sends them to an amplifier, which makes the ultrasonic sound waves audible.

Vascular surgery

Vascular surgery is a specialty of surgery in which diseases of the arteries and veins are managed by medical therapy, minimally-invasive catheter procedures, and surgical reconstruction. Vascular operations are no longer performed by general surgeons but by specialist vascular multi-disciplinary teams.