



Vascular Surgery Review for Kent and Medway

Case for Change

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

This summary sets out why specialist vascular services for people in Kent and Medway are being reviewed and the case for change.

What are specialist vascular services?

Vascular disease affects veins and arteries. It may cause blood clots, artery blockages and bleeds which can lead to strokes, amputations of limbs and conditions that might threaten life if left untreated.

NHS England South (South East) commission (plan and pay for) specialised treatment in Kent and Medway, Surrey and Sussex. We are leading a review to look at this small but very important part of specialised services in Kent and Medway.

Specialised vascular services are types of treatment for:

- aortic aneurysms – a bulge in the artery wall that can rupture (treatment may be planned or as an emergency)
- carotid artery disease, which can lead to stroke
- arterial blockages, which can put limbs at risk.

The types of treatment that might be required include:

- complex and potentially high risk bypass surgery to the neck, abdomen or limbs
- balloon or stent treatment to narrowed or blocked arteries
- blood clot dissolving treatments to the limbs
- stent grafts of varying complexity to treat aneurysms.

All these treatments are highly specialised and need a skilled team available 24 hours a day, every day of the year, to provide this service and support patients.

This review looks at both emergencies and planned specialist vascular treatment. It includes both patients treated in Kent and Medway hospitals and people living in Kent and Medway who go to London for their treatment.

This review is not looking at varicose vein surgery, heart disease, heart surgery or the management of the common types of stroke.

Why is NHS England reviewing specialist vascular services in Kent and Medway?

Vascular services are a specialised area of healthcare which, evidence has shown, will benefit from organisation into larger centres covering a population that is big enough for there to be significant volumes of activity in all areas of service, with a robustly staffed workforce able to deliver services 24 hours a day, 365 days of the year.

There is an opportunity to ensure that excellence in patient care and outcomes can be provided and that resource is always available for the vascular service to continue to improve on the type and standards of care provided. In Kent and Medway, the opportunity exists to develop this.

Establishing a vascular service of excellence will offer the opportunity for a much improved and comprehensive service to patients. In particular, the right model of care could deliver more local care to Kent and Medway residents and the type of care could include more complex procedures.

Such a centre(s) will be better able to embrace new technology and innovation in practice. A regional centre(s) of excellence is most likely to be the place that patients would choose for their specialist care and where other clinicians are most likely to refer their patients to. Such centres are most likely to be able to attract the highest calibre workforce and offer sustainability.

The training boards will look to centres of excellence to be involved in training the future generation of vascular clinicians. This not only benefits the service but invests in the future provision of excellence in patient care. Suitably sized centres with the appropriate population could offer opportunity for quality audit and research.

The vision of the clinical teams in Kent and Medway is to develop and deliver a model of care for vascular services that offers all of these benefits.

Background

In 2013, a national specification for vascular services was published. The standards in the specification were developed by a clinical reference group made up of vascular specialists. The standards are based on best practice guidance published in 2012 by the national Vascular Society, which represents vascular surgeons.

The evidence shows that centres which treat the right numbers of patients get better results: fewer people die and fewer are left with long-term disability.

There have been similar initiatives on trauma and heart disease which have successfully reduced death and disability rates for those conditions and improved the care offered to patients.

What does the national specification say?

It sets out that specialist vascular services need:

- To work within a hub and spoke clinical network (a central hospital and local supporting hospitals) where one hospital (the hub) provides all the inpatient surgery and the other hospitals (spokes) provide outpatient and diagnostic services in collaboration with the hub and, where appropriate, some day case surgery;
- To serve a minimum population (800,000) to ensure staff see enough different types of cases ;
- 24 hour access to specialist care, including six vascular surgeons, six interventional radiologists and specialist nurses, with sustainable on call rotas;
- To provide access to cutting-edge technology, including a hybrid operating theatre for endovascular (minimally invasive) aortic procedures and a dedicated ward for vascular patients;

- To have the right mix of highly skilled, specialist staff who each carry out enough specific procedures (known as core index procedures) to maintain and improve their skills, ensuring consistent safe quality care.

Our review has assessed vascular services for people in Kent and Medway against the best practice standards set out in the national service specification.

Who is undertaking the Kent and Medway review?

The review is overseen by a Programme Advisory Board, which is chaired by the Medical Director of NHS England South (South East). Its members include consultants from the three hospital trusts that are the main providers of vascular care to Kent and Medway residents, a consultant from the Vascular Society and representatives from the ambulance trust, NHS England specialised commissioning, public health, communications and engagement.

There has been active engagement with members of the public and key stakeholders and we have worked with them to develop the case for change and the decision making process. This will continue throughout the process.

To make sure we understand what patients, carers and the public think and give them the chance to shape services, we are running listening events, focus groups and an online survey. Feedback from these events will be presented to the Programme Advisory Board.

There will be a deliberative event as part of developing options for the future. Key clinical interdependencies between specialist vascular services and other medical departments and services will also be taken into account, particularly the central relationship with interventional radiology.

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

The primary objective of the Vascular 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.”

The Kent and Medway review will seek to deliver this objective and the national specification, ensuring:

- Clinical best practice is embedded into care at every stage for people needing specialist vascular services;
- Measurable quality improvements across Kent and Medway for vascular patients, the health economy, the workforce and other clinical specialities;
- Specialist vascular services for Kent and Medway attract, and are delivered by, skilled motivated clinicians from all the multi-disciplinary professions involved, improving both vascular outcomes and also for other associated clinical areas such as diabetes;

- Specialist vascular services are sustainable for the future and able to cope with any increased demand from projected population growth or changes to populations across Kent and Medway;
- Patients receive seamless and effective care at every stage of treatment, from their initial symptoms through to their return home;
- Specialist vascular services are delivered in a multi-disciplinary way which makes best use of the skills of a range of specialised professionals.

Where do Kent and Medway patients go now for inpatient treatment?

About 900 people a year in Kent and Medway need specialist vascular services. In Kent and Medway, it is provided by Medway NHS Foundation Trust (MFT) in Gillingham, and East Kent Hospitals University NHS Foundation Trust (EKHUFT) in Canterbury.

Most people from the west of the county - Tonbridge, Tunbridge Wells, Sevenoaks, Dartford, Gravesham and Swanley - receive their care in London, predominantly at St Thomas' Hospital. This arrangement has developed, rather than having been specifically planned. It is the result of links between doctors at different hospitals, and clinical and patient choice.

The London services are commissioned by NHS England London. The aim of this review is to achieve quality and sustainable care for all Kent and Medway residents, not just those treated in Kent and Medway now.

How do the current inpatient centres do against the national standards?

The service provided by St Thomas' Hospital in London is fully compliant with the national clinical guidance and best practice specification.

The services across Kent and Medway, while delivering on most of the key outcomes, are not fully compliant with the national clinical guidance or best practice specification.

The main issues are:

- The lack of a vascular network across Kent and Medway. Although the different stages of patients' care locally (before, during and after their hospital stay) seem to work well, there is little evidence of the two units in Kent and Medway formally collaborating. It is less clearly understood across Kent and Medway how things work for those patients who go to London.
- The number of people served by both East Kent Hospitals University NHS Foundation Trust (EKHUFT) and Medway NHS Foundation Trust (MFT) is below the 800,000 minimum which is recommended by the Vascular Society.

At both trusts, the total number of some of the core index procedures is either borderline or below the recommended numbers. For instance, the specification says vascular inpatient centres should carry out a minimum of 60 abdominal aortic aneurysm surgeries a year. In 2013/14, EKHUFT undertook 77 and MFT 60 of these procedures, while in 2014/15 EKHUFT undertook 85 and MFT 71.

For carotid endarterectomies, the target is a minimum of 50 per year. In 2013/14, EKHUFT undertook 66 and MFT 28 of these procedures, while in 2014/15, EKHUFT undertook 71 and MFT 32.

- The number of consultants is currently lower than required so there is concern about being able to staff the vascular surgical and interventional radiology rotas 24/7 at both sites.
- Visiting specialists from London (St Thomas' Hospital) carry out some day surgery and outpatient vascular care at other hospitals in Kent and Medway (Tunbridge Wells Hospital and Darent Valley Hospital).

As the commissioner, NHS England South (South East) has been granted "a derogation". This means that services in Kent and Medway can continue, even though they do not fully meet the national specification, while we work with the clinical specialists, patients and carers to find a solution.

What do local people say?

Ten listening events have been held across Kent and Medway to share the case for change with the public, patients and carers. Overall, the participants reported a positive experience of vascular services both in Kent and Medway and in London.

The attendees recognised the case for change. They said their priorities for vascular inpatient services are:

- The ability to make choices. There are a lot of factors which will influence that choice, so you need good information to help you decide;
- Information and communication, particularly for anxious family and carers;
- The need for high calibre staff with specialist skills and capacity to deliver the service 24/7. The best treatment possible as quickly as possible;
- Speedy access in an emergency situation, and smooth access for elective care – improved appointment systems;
- A strong, consultant team with the relevant support staff;
- The need for support, particularly following amputations, and to know what assistance is available including care in the wider community when people return home;
- Joined up working between services and disciplines, working within a clinical network, including improving the ability to recognise vascular disease.

Participants felt that having access to a specialist vascular team or centre was most important and reassuring in a life threatening situation, and having good access to such a service in Kent and Medway was vital.

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

When developing the options and recommendations for future vascular services, patients, carers and the public highlighted the importance of considering:

- Workforce and the possibility of attracting the best specialists to Kent;
- Speed of access to and availability of specialist care;
- The specifics of local populations;
- Patient/clinical choice;
- Potential population growth in Kent and Medway, particularly in Dartford;
- Transport networks.

Next steps

NHS England now plans to work with local people, the vascular and other clinical teams, and local representatives to develop a preferred option for the model of care for the future. This will not consider where specialist vascular services should be based, but how many centres there should be and how they should work with other hospitals.

As we do this, we will consider key issues, variables and impacts, including:

- Predicted population growth and changes;
- Every stage of care for people needing vascular inpatient care, from symptoms to rehabilitation;
- Key interdependencies: interventional radiology, emergency departments, diagnostics and other clinical specialities;
- Workforce issues and workforce interdependencies;
- Repatriation of patient pathways: if it is possible for patients to stay in Kent and Medway rather than go to London for their care;
- Vascular service finances;
- Further issues identified through public, clinical and stakeholder engagement.

The Kent and Medway review recommends that there should be no justification for not delivering the care standards and key service outcomes specified in the national service specification (2013) and Vascular Society Provision of Vascular Services Guidance 2012 and 2014.

Vision for the future

In future, vascular inpatient treatment for people in Kent and Medway will:

- 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 six vascular surgeons and six 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;
- 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;
- Hold multi-disciplinary team meetings at least once a week to improve patient care;
- Work towards all leg amputations being undertaken in a regional centre of excellence by 2015.

Conclusion

The case for change establishes that vascular services in Kent and Medway, while delivering on most of the key outcome measures, do not currently meet the national specification and best practice guidelines from the Vascular Society.

The main issues are that they are not treating a large enough population, are carrying out too few or borderline numbers of core index procedures and have too few staff, particularly consultants.

The public, patients and carers have noted the importance of joined up, 24-hour specialist services that are available in Kent and Medway, and would like these as quickly as possible. A full report of the findings from our listening events is attached (appendix one).

We will now look at the options for specialist vascular services in the future and consider how they address the issues identified in this case for change. We will work alongside the public and key stakeholders to appraise the options and recommend a preferred option for the model of care for the future. This will be the option which can best ensure quality, safe and sustainable specialist vascular services for the people of Kent and Medway.

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 proceeding to an options appraisal review to the Programme Board.

The options appraisal review will consider and then recommend to the Programme Board how providers of vascular services in Kent and Medway should work together in a network 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 that will benefit both patients and clinicians.

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 undertake an option appraisal process to address the case for change.
3. To develop and agreed preferred solution that addresses the case for change.

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 also increasing; with patients with diabetes and vascular disease in England having a worse outcome than other European countries, 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. 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 commissioner 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 to achieve the best outcomes for patients 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.

Being able to perform interventional radiology procedures in a dedicated hybrid theatre has the potential to significantly reduce the length of recovery and the risk of surgical complications and lower the risk of mortality compared to conventional open repairs.

To achieve the guidance and to deliver resilient and sustainable vascular services NHS England is reorganising vascular services into networks.

Since the publication of the national service specification NHS England, South-South East has 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 six vascular surgeons and six 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;
- 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 patients.

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. Hence there has been national recognition of the need for reconfiguration proposals to deliver sufficient activity per consultant to maintain the highest surgical standards.

Medway Foundation Trust and East Kent Hospitals University Trust are the two current arterial centres in Kent and Medway. However neither is currently able to meet the service specification criteria on its own (see table below).

4.1 Kent and Medway (K&M) Health Needs Assessment

K&M Population: The current K&M population is 1,747,000 (2014 clinical commissioning groups (CCG) profiles)

The Kent and Medway population currently grows by 8 percent, in line with national forecasts. The Medway share of the total population is 280,000 and has a slightly younger population than the England average. Across Kent and Medway population projections for the period 2013 to 2020 show the greatest increase in the older age bands;

- 17 percent within the 65-74 age band
- 22 percent within the 75-84 age band
- 29 percent within the 85 plus age band.

In 2012, 42 percent of the 65 years and older Kent and Medway population were found in East Kent, and lower proportions, 31 percent and 26 percent respectively were found in North and West Kent. Swale (25 percent) and Ashford (25 percent) CCG populations showing the largest increase, between 2012 and 2020, followed by Medway at 22 percent.

There are some key housing developments anticipated. This includes the garden city development at Ebsfleet 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.

Allowing for the proposed housing expansions, North Kent are anticipated to see a 26 percent population growth for the Dartford, Gravesham and Swanley CCG population. This is forecast to be in the younger age group.

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. Currently circa 28 percent of the total Kent and Medway activity flows into London.

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Kent and Medway faces a number of demographic challenges these include pockets of significant growth in over 65 year olds in some areas, areas of deprivation and a significant variation of mortality across its wards.

Cardio Vascular Disease (CVD) is a key cause for premature death in Kent and Medway. Key concerns are the high prevalence of diabetes, hypertension, obesity and smoking.

The non-modifiable factors for CVD relate to;

- Age
- Male gender
- Ethnicity
- Family History.

The modifiable features include;

- Diabetes
- Smoking
- Hypertension
- Obesity
- Physical inactivity
- Cholesterol levels
- Alcohol.

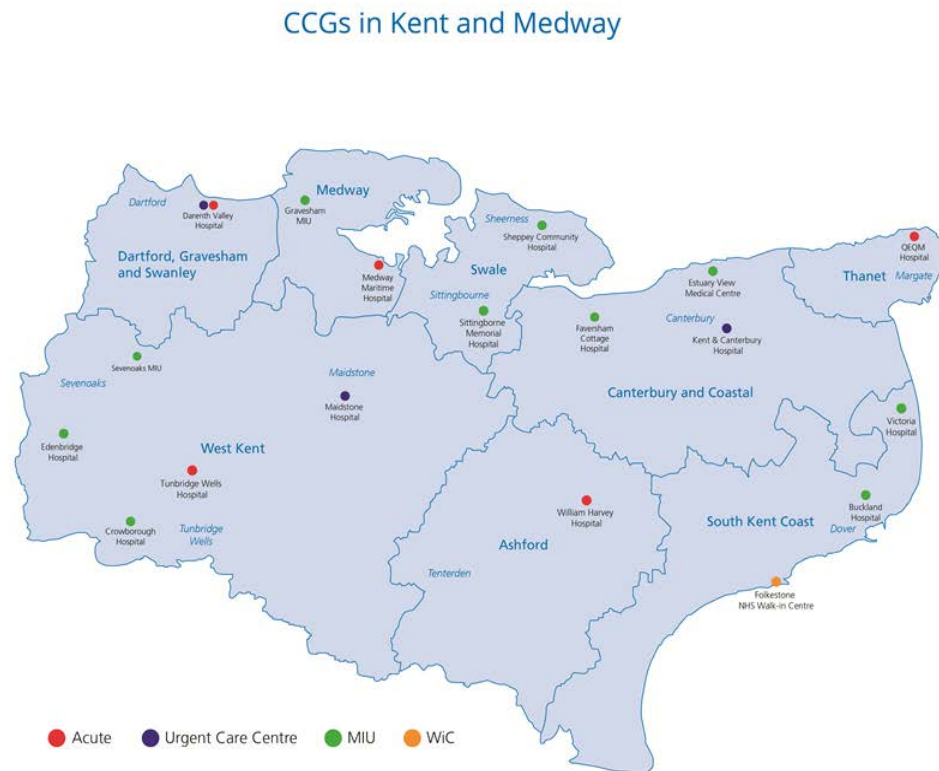
Across Kent and Medway, the highest prevalence for hypertension is in South Kent Coast and Thanet CCGs followed by, Dartford/Swanley & Gravesham CCG.

Diabetes prevalence is highest in Swale and Thanet CCGs followed by South Kent Coast and Medway CCGs.

Medway CCG has the highest level of obesity followed by Swale CCG.

As noted there is a variance across Kent and Medway in relation to deprivation with key pockets across the North Kent and east coastal areas in particular South Kent Coast, DGS, Thanet and Swale. There are however specific wards in CCG areas with high levels of deprivation including Medway and West Kent CCGs.

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



4.3 Current In-Patient Pathway

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

Two of the trusts, MFT (Medway) and EKUHFT (Canterbury) provide vascular surgical services (as arterial centres) and Kent and Medway residents also access two central London hospitals (Guy's 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.

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
Total	1,747,500
Local authorities serving Kent and Medway	
Kent County Council	
Medway Council	

4.5 Current Patient Flows

The following table illustrates the Kent and Medway referral flows for total Core Index Procedures.

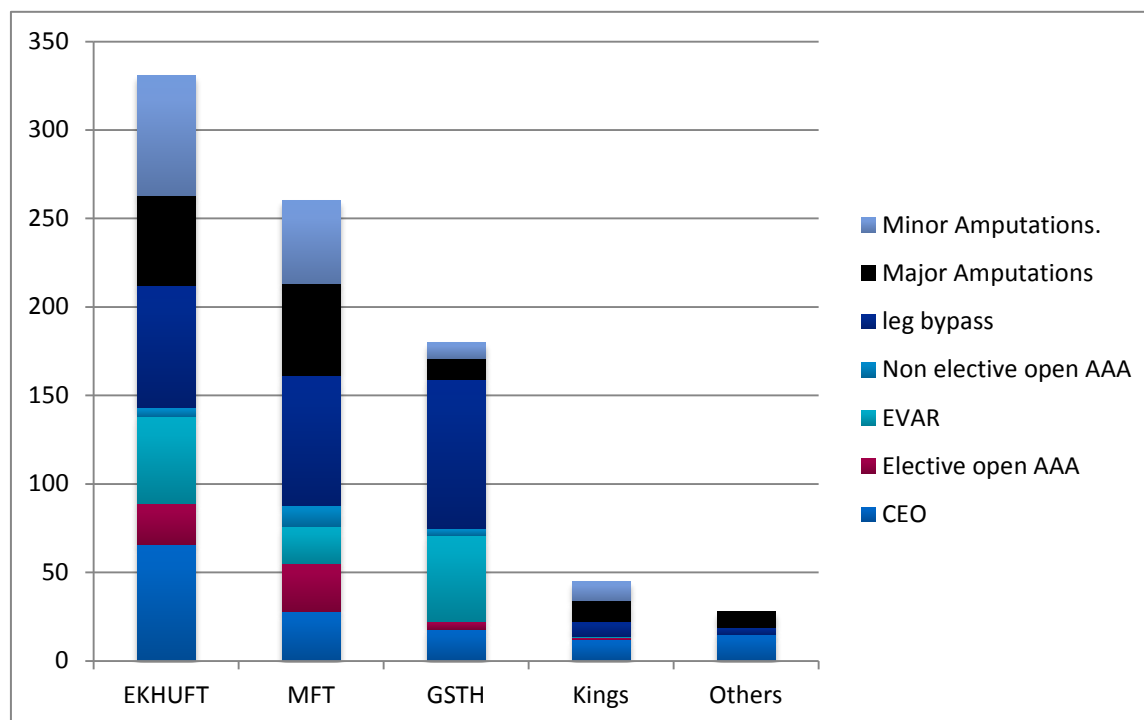


Table 1

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)

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- St Thomas' Hospital, London –(Guy's and St Thomas' Hospital NHS Foundation Trust)

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 Guy's 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 (GSTTH).

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).

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	Out Patients also at Buckland hospital Dover
EKHUFT - WHH	No	No	Yes	No	
EKHUFT - QEQM	No	No	Yes	No	
MFT - MMH	Yes	Yes	Yes	Yes	Out-Patient also at Maidstone & Sheppey and Sittingbourne Gravesend

MTW - Tunbridge Wells Hospital	No	Yes	Yes	Yes	Surgeon joint appointment with GSTH
MTW - Maidstone Hospital	No	No	Yes	No	
Dartford & Gravesham - DVH	No	? Yes	Yes	Yes	Surgeons joint appointment with GSTT

Table 2

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). 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 taken the patient to the nearest emergency department unit with onsite surgical services 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 (2016). 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 by Guy's and St Thomas' Hospitals NHS Foundation Trust. This is managed through service level agreements with Maidstone and Tunbridge Wells NHS Trust and Dartford and Gravesham NHS 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

Guy's 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 Maidstone & Tunbridge Wells Hospital with another being actively considered.
- Two consultant vascular surgeon joint appointments at Darent Valley Hospital.

This service level agreement operates under a hub and spoke network model as described by the Vascular Society guidance.

For residents in the Tunbridge Wells and Tonbridge area they may travel for around 60 minutes when travelling to St. Thomas' hospital by ambulance.

King's College Hospital Foundation Trust

King's College Hospital Trust, London currently undertakes a number of Core Index procedures for residents of Kent. This is due to historical referral pathways and these numbers have been reducing. The newly formed South East London vascular network will mean that in the future Kent and Medway patients, who previously attending Kings College hospital will travel to St Thomas' hospital, London.

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. (These reviews were prior to the publication of the national specification and VS guidance). 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 2009. Service level agreements have been in place 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 15).

5 Core Information and Standards

5.1 National Service Specification

The national specification for vascular services 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 / Inpatient 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 but for a world class service a larger catchment area will be required.
- Adequate volumes of core vascular procedures.(> 60 AAA procedures, > 50 Carotid Endarterectomies and commensurate lower limb procedures)
- 24/7 arterial surgery
- 24/7 interventional radiology available
- Acceptable on call rota requirements, i.e. consultants being on call no more frequently than every six weeks.
- A minimum of six services arterial surgeons and six 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 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).

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Required	Medway FT	East Kent Hospitals	St Thomas' Hospital	Comments
24/7 MDT	No	No	Yes	
6 vascular surgeons. On call rota (1:6)	No 1:5* includes a locum	No 1:4	Yes 1:10	Recruitment underway in both K&M Trusts (April 2015)
On call Vascular Interventional radiology	yes	yes	Yes	Recruitment underway
AAA screening	Through K&M programme	EKHUFT delivers the K&M screening programme	Yes	
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	
Planning Population currently served;	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

Risk adjusted Mortality rates; AAA/CE (NVR data September 15)	4.6%/ 4.0%	1.1%/ 1.0%	0.6%/ 3.5%	All within national tolerance
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Table 3

5.3 The Vascular Society

The Vascular Society has published guidance on the Provision of services for Patients with Vascular Disease 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. (N.B. 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 business hours. 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 timely treatment of any complications, which may occur.
- 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 provisions, supported by 24/7 critical care, dedicated vascular wards and endovascular theatre.

- 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 percent (by the 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 vascular centres should provide dedicated 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.
- This care should be provided in a ward dedicated to the care of vascular patients. It 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 percent 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>

5.4 Ambition of the review

Vascular services are a specialised area of healthcare, which evidence has shown, will benefit from organisation into larger centres. These centres should cover a population big enough to facilitate significant volumes of activity in all areas of service. There must be a robustly staffed workforce able to deliver services 24 /7, 365 days of the year. There is an opportunity to ensure that excellence in patient care and outcome can be provided and the resource is always available for the vascular service to continue to improve on the type and standards of care provided. In Kent and Medway the opportunity exists to develop this. Establishing a vascular service of excellence will offer the opportunity for a much improved and comprehensive service to patients. In particular the right model of care could deliver the opportunity to provide more local care to Kent and Medway residents and the type of care could include more complex procedures. Such a centre(s) will be better able to embrace new technology and innovation in practice. A regional centre(s) of excellence is most likely to facilitate repatriation of patient flows. Such centres are most likely to be able to attract the highest calibre workforce and offer sustainability. The training boards will look to centres of excellence to be involved in training the future generation of vascular clinicians. This not only benefits the service but invests in the future provision of excellence in patient care. Suitably sized centres with the appropriate population could offer opportunity for quality audit and research.

- The vision of the clinical teams in Kent and Medway is to develop and deliver a model of care for vascular services that could offer all of these benefits.

5.5 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

As well as the core index procedures the review is looking at key interdependencies between vascular services and other departments and services, 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 for 2013/14 to assess accuracy and has been pulled from a single source (NVAR) for 14/15. The three sources used are:

- 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 that has been used for the review 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 table below shows the activity and the three sources of data). The Board has agreed that it will use the NVAR figures for the purposes of the review.

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 2013/14; 897**

Index Procedure	East Kent University Hospital Foundation Trust			Medway Foundation Trust		
	NVAR	SUS	Trust	NVAR	SUS	Trust
AAA Electives , open	23	23	23	27	28	26
EVAR	49	57	57	21	22	22
AAA Non elective, open	5	4	4	12	11	13
Total AAAs	77	84	84	60	61	61
Carotid Endarterectomy	66	60	61	28	29	28
Leg bypass	NR	69	69	NR	73	74
Major amputation	NR	51	53	NR	52	52
Minor amputation	NR	68	68	NR	47	48
Total core index numbers	331 inc SUS	332	332	260 inc SUS	321	263

Table 4

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

Index Procedure	Guy's 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 AAAs	57	2	1	

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Leg bypass	84	8	4	4
Major amputation	12	12		9
Minor amputation	9	11		48
TOTAL	180	45	5	76

Table 5

The following table shows the NVAR activity for AAA and Carotid Endartarectomies for 14/15 across the three main providers for K&M residents.

	EKHUFT	MFT	GSTH (nb this is total activity not just K&M)
AAA electives open	19	11	31
EVAR	49 electives plus 12 non electives = 61 total	43 electives plus 9 non electives = 52 total	95 electives plus 37 non electives = 132 total
AAA non elective open	5	8	16
Total AAAs	85	71	179
Carotid Endartarectomies	71	32	56

Table 6

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 percent mortality rate in lower volume centres compared to 5.9 percent in higher ones (Holt, Poloniecki, et 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 percent (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.

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 infrastructure, 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.

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.

6.3 Travel - the impact of travel distance/times and transfer 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 Vascular Society (VS) guidance notes that protocols must be developed, particularly by the accident and emergency department and ambulance service, to allow transfer of vascular emergencies to the adjacent vascular unit without delay. There is recognition that whilst most hospitals are within an hour from their neighbour the key priority is to transfer the patient to a vascular unit, even if the travel time is beyond the hour, as evidence shows that this improves patient outcomes.

“Patient survival after a ruptured aortic aneurysm is between 5-15 percent if they stay in a hospital with no vascular surgeon, compared to 35-65 percent if transferred to an adjacent vascular service. This advantage persists even with up to four hours of hypotension, although patients who suffer a cardiac arrest are unlikely to survive transfer.”

The VS guidance recommends that vascular services should be arranged to minimise transfer times.

A mapping of emergency travel times shows that all Kent and Medway residents are able to access the two current providers within 60 minutes. London hospitals are able to receive patients within an 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. Other patients note the need to get to specialist care quickly and recognise this may require travelling further.

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

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 percent) and those transferred from other centres for surgery (54 percent). 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 endovascular aneurysm repair (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;
- Establish vascular centers of excellence that can provide 24/7 care;
- Publish amputation rates and outcomes.

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; by 2013. The one exception relates to Lower Limb bypass. **
- The numbers of Core Index Procedures were borderline in most cases. Carotid Endarterectomies low in Medway Foundation Trust.
- The planning population numbers did not meet the requirement for either unit.
- MDT cover is difficult to achieve over seven days, particularly in relation to nursing.
- 24/7 consultant cover, surgeons and interventional radiologists (IR).
- Consultant rotas , concerns re sustainability currently; Currently East Kent consultants are on call every 3/4 weeks and Medway consultants every 4/5 weeks confirm this.
- As they do not provide specialist vascular surgery 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 seven 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 either borderline or below target. The mortality rates are within the acceptable target, not all Kent and Medway providers have achieved the national specification ambition of achieving a mortality rate of 3.5 percent.

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.
- Carotid Endarterectomies have historically been undertaken at MTW Hospital and Darent Valley Hospital but now confirmed this has ceased.
- Mortality rates are within the national specification acceptable levels but not all under the 2013 target, further improvements are likely to be required in the future. There is currently no assurance that outcome targets will continue to be achieved given the lack of current service capacity at individual trusts to maintain resilience in the face of expected demand.

Currently a significant proportion of activity from north and west Kent goes to Guy's and St Thomas' Hospital with 75 interventions (Carotid endarterectomies / AAA's) as compared with 88 at MFT and 143 at EKHUFT(13/14 data). 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 , Darent Valley Hospital and Maidstone and Tonbridge Wells Hospital.

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.

Population Data

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

If all the Kent population was cared for within Kent (i.e. including the population currently flowing into London from west and north Kent) then the total network population would exceed the required 1.600,000 across Kent and Medway to service two vascular networks i.e. 800,000 per network.

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

Even if it were possible to divert the London referral flow back into Kent the current referral pathways would suggest that it is unlikely that any of this diverted activity would flow to East Kent.

Successful repatriation is more likely to be achieved over time by developing a model of service excellence within Kent and Medway.

Any proposed repatriation of activity could not interfere with patient choice to a recognised, compliant provider. The Kent and Medway vascular review will address this issue in detail within the options appraisal process.

7.4 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 beyond a one hour travel time.

Historic relationships and current visiting consultants have contributed to a pathway in west and north Kent that engages with Guy's and St Thomas' hospitals 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 percent 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 1,100.

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

7.5 Workforce

High quality vascular services are delivered through a wide range multi-disciplinary team. This includes specialist consultants, interventional radiologists (IR), 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 centres, 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.

7.6 Vascular Consultants

An arterial center (serving a 800,000 population) should have six whole time equivalent (WTE) vascular consultants, equating to 60-72 PAs (protected activities).

An individual on the vascular rota, but undertaking little elective work (ie less than 4PA), cannot reasonably be considered a vascular specialist. None of the current consultants in Kent and Medway undertake less than 4PA's. 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. These are outside of the guidance with 1:5 at MFT and 1:4 at EKHUFT, this may raise concerns re sustainability across Kent and Medway.

	EKHUFT	MFT	Comments
Number of consultants uploading onto National Vascular Register (Sept 15)	4	4	
Retirements due in next five years	2 posts. 1 in 2 years 1 in 2 to 5 years	1 post in autumn 2015	
Dedicated vascular rota	Yes. 1:3	Yes 1:3	
Dedicated vascular interventional radiology rota	Yes	Yes	Options appraisal to confirm ratio and requirement for non-vascular pts.
Dedicated vascular ward	Yes	Yes	
Dedicated	Yes, supporting the wards, consultant	Yes	No specialist nurses covering

specialist nurses	clinics and specialist nurse Out Patient clinics		the weekends.
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Table 7

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.

7.7 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 interventional radiology (IR).

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

7.8 Vascular Nurse Specialists

Vascular Nurse Specialists (VNS) are increasingly important in the delivery of vascular services, especially in non arterial centres. VSGBI 2014 specifies that each non arterial centre should have at least one VNS dedicated to covering the work at each site, in addition to those required at arterial centres. The role will need to be reviewed and developed to support consultant colleagues in the vascular network, and the VNS' 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.

7.9 Vascular Multi-Disciplinary Team

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

- The wider vascular multi-disciplinary team, this will include vascular technologists and scientists alongside the specialist consultants, anaesthetists and nurses
- Diabetic and non-diabetic podiatrists and diabetic foot care MDTs
- Radiographers
- Physiotherapists

- Occupational therapists
- Critical care paramedics
- Pharmacists

7.10 Travel Times

Travel times mapping for emergency access illustrates that the current two sites are able to meet their existing patient flows within a one hour travel time. Both MFT and EKHUFT are accessible to all Kent and Medway 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 and to transfer vascular emergencies to the vascular unit without delay. The key priority is to transfer the patient to a vascular unit, even if the travel time is beyond the hour, as evidence shows that this improves patient outcomes.

7.11 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 South East Coast 'Clinical Co-dependencies of Acute Hospital services '2014' suggest which services should be collocated and/or have close visiting relationships, demonstrable pathways.

Key co-locations for vascular services noted in the report 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 required to be co-located i.e.; MRI, CT, Xray and ultra sound. Also advised is collocation 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 guidance, both advise that it is desirable to locate alongside Accident and Emergency departments and a robust critical care unit. The Vascular Society representative on the Programme Board notes that the above is desirable but not essential. However a major trauma unit must have vascular consultant support available within 30 minutes. Where there is no co-located Emergency Department then there must be clear protocols and demonstrable pathways in place to manage vascular patients. This must include clinically agreed safe pathways for patients 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;
- Renal units should co-locate with interventional radiology, and with vascular surgery hubs, (SEC Clinical Senate report 2014);
 - 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.

7.12 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.

7.13 National Specification – Kent and Medway Position

Summary of findings

Key indicators/measures	Current Kent and Medway position	Risk
One hour travel time for emergency AAA	Current sites meet this across Kent and Medway	London hospitals may not always meet this in some parts of Kent and Medway. Travel times may be extended to ensure safe transfer of unstable emergency Aortic Aneurysm patients.

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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.
Total index procedures	AAAs achieved Carotid Endartarectomie's below at Medway FoundationTrust	Achievement is generally borderline, increasing the risk of ad hoc practice
24 hr consultant cover	Current sites meet this	Pressure on rotas especially EK. Retirements due in the next 1 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 acceptable levels	Unclear re further improvements required Not within the additional target
Morbidity rates	Generally good , only exception outcomes for lower limb amputations	Amputation outcomes in Kent and Medway poor. Need to understand the impact of low rates of Carotid Endarterectomies on the 30 day stroke mortality rates
Nursing cover	Not seven day cover	Potential impact on the ability to develop practice
Hybrid theatre and dedicated vascular ward	Both units have vascular wards.	Both units have dedicated IR facilities to be assessed against the MHRA guidance for compliance

Table 8

The findings confirm that:

1. The current arterial centres in Kent and Medway are not complaint with the national specification and Vascular Society 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/acceptable level (currently this has not been evaluated at individual consultant level or in relation to interdependent clinical pathways i.e. 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.

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5. Access to the two Kent and Medway centres is within a one hour emergency travel time for the existing patient flows.
6. Concerns that access to St Thomas' hospital in London may at times be outside of a one hour travel time for some West Kent residents.
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 two to five 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. Reorganisation 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 may 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 Kent and Medway strategic picture understanding current financial pressures and quality concerns.

8 Proposal Benefits

The benefits we expect for patients are:

- 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 Vascular Society 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 Kent and Medway 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.

- 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. The senate report and Kent and Medway Vascular review Programme Advisory Board action plan will be used and referenced for assurance of the review process.
- 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 alongside the public and clinicians 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
 - The likelihood of repatriating patient flows
 - Issues and priorities 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	Angioplasty 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 carotid endarterectomy 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

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	through it without pushing on the bulge.
EVAR	See Abdominal aortic aneurysm repair.
Fenestrated Grafts	Fenestrated stent grafts have been developed to offer an endovascular treatment option to those patients with abdominal aortic aneurysms whose infrarenal necks are anatomically unsuitable for endovascular repair with standard infrarenal devices.
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	Peripheral arterial disease (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.
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.
