

1. Name of Institution: Glenfield Hospital, Leicester

2. Names of Vascular Surgeon and Vascular Radiologist: Mr Robert SM Davies FRCS & Dr Neghal Kandiyil FRCR

3. Statement of Collaboration between radiology and vascular departments

The Vascular Surgery Unit at Glenfield Hospital is one of the best known in the United Kingdom. It has been at the forefront of the development of endovascular therapy over the last three decades, leading and taking part in several randomised trials which have shaped endovascular practice, and pioneering peripheral revascularisation techniques such as subintimal angioplasty, intravascular lithotripsy, atherectomy, and endovascular reconstruction of the aortic bifurcation for severe occlusive aorto-iliac disease (CERAB). The Unit is comprised of ten Consultant Vascular Surgeons and four Consultant Vascular Radiologists.

The Unit prides itself on close co-operation between the radiological and surgical staff and embraces the team approach to successful working, training, learning and the treatment of patients both in the elective and emergency setting.

We have pioneered the introduction of a daily Vascular Limb Salvage (VaLS) clinic, which sees patients with severe peripheral arterial disease (PAD) and who receive streamlined diagnostic imaging (cross-sectional imaging obtained in clinic, including computed tomography where necessary) and urgent endovascular/open revascularisation, if necessary. The VaLS clinic is now used as a model pathway of PAD care in the NHS.

There are twice weekly multidisciplinary meetings covering both peripheral endovascular work and endovascular aortic aneurysm repair. All decision making is made jointly between the radiology and surgical staff; complex cases (inpatients and those seen in our VaLS clinic) are discussed daily in a multidisciplinary lunchtime meeting, involving all vascular healthcare staff. All complex endovascular procedures are performed in a state-of-the-art hybrid theatre with a consultant vascular radiologist and/or consultant vascular surgeon present

4. Record of training in endovascular surgery

Leicester has a proven track record in training vascular surgical and radiology trainees in both the elective and emergency setting. These skills are taught both in the hybrid operating theatre and angiography suite. Our hybrid operating theatre is equipped with the latest available imaging technology, including fusion imaging, and capability to perform on-table computed tomography scanning (Siemens Zeego platform). We also use intravascular ultrasound imaging routinely for venous and arterial endovascular procedures, as well as automated CO2 imaging where necessary, using the Angiodroid device. Our trainees have the opportunity to obtain skills in all of the aforementioned endovascular imaging technologies on a daily basis. Our angiography suites have also recently been upgraded and are in close proximity with the hybrid suite, allowing close interaction and collaboration between disciplines.

There are dedicated slots for vascular surgical trainees in the angiography suite, where they are trained in wire and catheter based skills and routinely perform peripheral angioplasty and stenting under supervision. Our trainees are also taught on how to use and interpret various imaging modalities such as duplex and in the pre-operative planning for endovascular aneurysm repair (EVAR). We have dedicated 3D imaging reconstruction stations (TeraRecon software) in our MDT room, which allows trainees to plan endovascular procedures, under supervision when necessary, using the latest available tools.

Both consultant vascular surgeons and radiologists alike are keen to teach trainees from both disciplines, not only the technical skills involved in endovascular surgery but also, and probably more importantly, how this can be achieved in a closely knit team working environment.

5. Number of indexed endovascular procedures in 2021-22

In 2021-22 there were the following procedures performed at the Leicester Vascular Unit:

- 186 iliac angioplasty and stenting procedures
- 58 CERAB procedures - we have performed the largest volume of CERAB procedures in Europe
- 717 infrainguinal angioplasties (femoro-popliteal)
- 340 crural angioplasties
- 34 retrograde access complex infrainguinal angioplasties, including 5 SAFARI procedures, and 6 PRESTO technique procedures
- 2 deep venous arterialisation procedures
- 89 endovascular infrarenal aortic aneurysm repairs
- 3 fenestrated and 3 branched endovascular aortic aneurysm repairs
- 18 thoracic aortic endovascular repairs.

We have pioneered the use of atherectomy (JetStream), DAART, intravascular lithotripsy, and CO2 imaging using an automated system (Angiodroid) in the NHS. We routinely use biomimetic stents, crural stents, limus-based drug eluting/coated platforms, endovascular thrombectomy (AngioJet), and other new technologies in our endovascular practice.

6. Statement of endovascular training to be offered in Leicester

In Leicester, all consultant vascular surgeons and radiologists welcome these fellowships and all are committed to deliver world-class endovascular training. The BSET training fellow will complete the fellowship in Leicester having gained extensive experience in endovascular surgery and will be educated in the benefits of a team working environment. They will have the opportunity to be trained in an environment which has embraced the latest advances in endovascular technologies, including devices and techniques unique in the NHS, especially relating to the treatment of complex PAD.

We will provide tailored training, depending on the needs of the individual trainee, which will be free of service commitments, the precise nature of which would depend on the background of any individual fellow taking up the fellowship.

At the beginning of the fellowship, each fellow will be assigned an educational supervisor/mentor and his training needs will be identified. Based on this, a learning agreement will then be formalised and distributed to all consultant vascular surgeons and radiologists. The trainee will then enter into an educational contract with the Leicester Vascular Unit. In addition, there will be monthly meetings between the fellow and their mentor.

It is envisaged that the fellow will have priority over other trainees to at least two endovascular sessions per week in the hybrid theatre / angiography suite.

Irrespective of the prior experience of the fellow taking up the post, at the completion of six months training, we would expect them to have the following core proficiencies:

Angiographic access techniques

Basic iliofemoral angioplasty and stenting

Endovascular planning for aortic aneurysm repair, including CT interpretation and device selection

Endovascular stent deployment including intra-operative angiography

Clinical follow up of endovascular abdominal aortic aneurysm repair and the principles of endoleak management

Surgical access to the femoral and iliac artery

In addition to the core proficiencies above we would expect to provide experience in thoracic aortic endovascular repair, subintimal angioplasty, infrainguinal stenting, ultrasonographic guided treatment of false aneurysms and surgical access techniques for vessels other than common femoral. The fellow will also have the opportunity to learn how to perform atherectomy, intravascular lithotripsy, endovascular thrombectomy, and retrograde access (lower limb), should they wish to do so.

We believe the proposed fellowship structure is flexible enough to accommodate trainees from either radiology or surgical backgrounds. We would expect the fellow to have performed 50-100 interventions in the angiography suite and approximately 20-30 endovascular aneurysm repairs. Our unit is large enough to easily accommodate this fellowship without having to require the fellow to undertake any service commitment.