NATIONAL SPECIALIST REGISTER
- Vascular Surgery

Introduction

Vascular surgery, considered a subspecialty of General surgery until recently, is now a specialty on its own right. A Vascular surgeon is trained in the diagnosis and management of diseases affecting all parts of the vascular system except the heart and the brain. Though medical and open surgery had been traditionally the modalities of treatment of vascular diseases, the present day Vascular surgeon is expected to be knowledgeable and skill in medical, surgical and endovascular therapy.

This document outlined the criteria required of a specialist to be credentialed as a Vascular surgeon, and as such qualified to treat patients with vascular diseases. It is recognized that Vascular surgery is rapidly evolving, especially in the field of endovascular surgery. This has added to the armament of treatment modality available to the Vascular surgeon, and as such is included in the training. It is also recognized that certain very specialized and new procedure may require special training and credentialing and this may take place after qualification. This document is to be reviewed and updated regularly as the specialty develops.

Definition of a Vascular surgeon

A vascular surgeon should have:

- Preferably completed training in General surgery.
- The skills to diagnose and treat diseases of the vessels – arteries, veins and lymphatics.
- The necessary clinical and surgical skills to treat both elective and emergency vascular conditions.
- A good knowledge of the relevant basic science and vascular medicine.
- A good knowledge of vascular radiology including the relevant diagnostic modalities.
- A good knowledge of endovascular surgery in the management of vascular disease.

Training in Vascular surgery

The curriculum in the training of Vascular surgery include :

Basic Science

- Anatomy of vascular system
- Molecular and cellular biology of vascular systems
- Physiology of vascular systems
- Pathophysiology of vascular systems
- Haemodynamics of blood flow

- Haemostasis
- Blood and its constituents
- Coagulation and coagulopathy
- Atherosclerosis
- Non atherosclerotic disease of vascular systems
- Diabetes Mellitus
- Aneurysmal disease
- Microbiology and vascular disease
- Pharmacology and vascular disease
- Vascular grafts
- Haemodialysis and vascular access

Clinical Curriculum

- Diagnostic techniques
- Interventional radiology
- Risk stratification and preoperative assessments
- Acute ischaemia
- Vascular trauma
- Occlusive disease of:
- Peripheral system
- Visceral and renal
- Carotid artery
- Branches of the aortic arch
- Non atherosclerotic occlusive disease
- Aneurysmal disease (excluding cerebral)
- Diabetic foot ulcers
- Thoracic outlet syndrome
- Hyperhydrosis and symphatectomy
- Venous disease:
- Thromboembolic conditions
- Chronic venous hypertension
- Lymphoedema
- Arteriovenous malformation
- Techniques of achieving haemodialysis access
- Complications of vascular surgery
- Amputations

At the end of his/her training, the trainee is expected to be competent to perform the following procedures (Core procedures) :

- Peri-operative angiography
- Arterial injuries
- Embolectomy
- Infra renal AAA repair (elective)
- Infra renal AAA repair (emergency)
- Aorto/iliac/femoral bypasses
- Axillo-femoral bypasses
- Infra-inguinal bypasses
- Reoperations for lower limbs bypasses
- Upper limb arterial reconstructions
- Varicose veins surgery
- Vascular access

Specialized procedures

These are procedures which may require further training. Though the trainee is not expected to perform (on his/her own) these procedures at the end of the training program, he/she is expected to have a good knowledge of these procedures.

- Endovascular intervention
- Carotid endarterectomy
- Carotid body tumour
- Thoracic outlet syndrome
- Thoracic aortic aneurysm
- Thoracic aortic dissection
- Supra renal AAA
- Mesenteric and renal arteries reconstruction
- Reoperations for aortic grafts
- Venous reconstruction
- Arteriovenous malformation
- Thoracoscopic symphatectomy
- Lymphoedema

Criteria for registration in National Specialist Registry (NSR):

To be eligible to registered as a Vascular surgeon in the NSR, the candidate must have an undergraduate qualification that is recognized by the Malaysian Medical Council and :

1. Has completed vascular surgical training in one of the following training schemes:

    i. Fellowship training in Vascular Surgery in Ministry of Health Hospitals of Malaysia
    ii. Fellow of the Royal of College of Surgeons (FRCS General/Vascular) with Certificate of Completion of Specialist Training (CCST) United Kingdom
    iii. Fellow of the Royal Australasian College of Surgeons (FRACS vascular surgery)
    iv. American Board of Surgery Certification in Vascular Surgery

2. Those who have not undergone vascular training in the above training schemes may be considered for registration in the NSR if it is satisfied that he/she had undergone training in Vascular surgery of a standard and level equivalent to the above recognized training schemes :

    i. Preferably, he/she is expected to have completed general surgical training.
    ii. He/she had completed training in recognized vascular surgery units (as defined below) for a minimum of 3 years.
    iii. He/she should maintain a logbook that meets the minimum number of cases as stated below (as a principal operator for the last 2 years):

Procedures	Number
a. Abdominal Aortic Aneurysm Repair	15
b. Peripheral Bypasses	25
c. Vascular Access	30
d. Varicose Veins	20

iv. He/she has sufficient knowledge and exposure to endovascular surgery
v. He/she has satisfactory supervisors' reports.

Vascular surgical units that are recognized as training centre must meet the following conditions:

i. Have one or more accredited vascular surgeons who have at least 3 years experience as a consultant vascular surgeon.
ii. Sufficient workload for the trainee to gain the necessary experience in the whole spectrum of vascular surgery.
iii. There should be a minimum of 50 major vascular procedures per year in the unit. The procedures should include open aortic surgery and infra-inguinal bypasses.
iv. Have suitable imaging facilities including angiography, CT scan, MRI and Duplex scan.
v. Have other supporting specialties such as rehabilitation, general medicine/cardiology and radiology to manage the patients in a multi-disciplinary manner.
vi. Provide emergency vascular surgery and radiology service round the clock
vii. Weekly clinical/radiological meeting
viii. Have High dependency unit (HDU) and Intensive Care Unit (ICU)

3. Senior surgeons who have been practicing vascular surgery may be registered as a vascular surgeon in the NSR if:

i. He/she had undergone training in vascular surgery.
ii. He/she had practiced vascular surgery in the last 5 years.
iii. At least 50% of his/her workload is vascular surgery.
iv. He/she performs at least 50 vascular procedures per year that includes:

a. Open and/or endovascular abdominal aortic aneurysm repair
b. Aortic bypasses
c. Infra-inguinal bypasses
d. Varicose veins
e. Vascular access

v. 20% of the vascular operations performed must be major arterial surgery.

Re-Certification

To maintain registration in the NSR, the doctor must continue to be active in vascular surgical practice. He/she ought to maintain the skills needed for vascular operations, which include abdominal aortic aneurysms repair, peripheral arterial reconstructions, vascular access and venous surgery.