

Vascular Surgery Rotation Goals & Objectives (Junior General Surgery Residents)

Overall Objectives

Junior vascular surgery rotations are designed to provide vascular surgery residents with the cognitive, technical, and interpersonal skills that will serve as the foundation for senior vascular surgery rotations. As such, these rotations are guided by the principles of graduated responsibility with guidance and supervision appropriate for the individual.

Upon completion of this rotation, residents will be able to safely manage the initial care of patients with vascular problems. This will be demonstrated by the ability to use knowledge and skills to assess a patient's condition efficiently and accurately, prioritize the patient's needs, recognize when the patient's needs are beyond the knowledge and skills of the resident, and ensure that optimal care is provided at all times.

1. Medical Expert/Clinical Decision Maker

Knowledge: Basic Science and Anatomy

The resident must have a clear understanding of the anatomy, physiology, and pathophysiology of the circulatory system in health and disease, including arterial wall and cell biology, hemodynamics, and ischemia-related organ dysfunction.

Knowledge: General Clinical

The following clinical skills must be demonstrated by the end of the rotation:

- a) The resident must be able to elicit a history that is relevant, concise, accurate and appropriate to the patient's problem(s).
- b) The resident must be able to perform a physical examination that is sufficiently thorough and appropriate for the clinical problem.
- c) The resident must be able to develop an understanding of the natural history of vascular disease and management of risk factors, and how non-surgical treatment, percutaneous and/or surgical intervention can alter this.
- d) The resident should have a clear understanding of the diagnostic and therapeutic procedures available in medical imaging for vascular disorders such as plain radiograms, diagnostic angiography, Doppler ultrasound and duplex imaging, CT, MRI, therapeutic angiographic procedures, and thrombolysis.
- e) The resident should know the indications for arterial catheterization techniques, risks and complications of contrast agents, and the use of nuclear medicine imaging in the course of arterial disease including infection of arterial grafts.
- f) The resident must have an understanding of pre-operative risk assessment and approaches to minimize such risks.

Knowledge: Specific Clinical Problems

At the end of the rotation the resident should have the knowledge and skills to assess and contribute to the management of patients with the following conditions:

Lower Limb Arterial Disease including claudication

- a) Assessment of acute ischemia
- b) Clinical assessment of the ischemic leg and angiography
- c) An assessment of possible need for urgent intervention
- d) Appreciation of the indications for thrombolysis and involvement in the cases
- e) An understanding of the place of fasciotomy
- f) Assessment of chronic ischemia
- g) Assessment of patients with claudication or critical limb ischemia
- h) Understanding the role of arteriography in lower limb vascular disease
- i) An understanding of duplex graft surveillance
- j) An appreciation of the various modalities of treatment, including exercise, pharmacological manipulation, and endoluminal techniques

Aortic Disease

- a) Assessment and knowledge of the treatment of aortic aneurysm and aortoiliac occlusive disease
- b) Recognition of and formulation of an initial management plan for patients suspected of having ruptured Abdominal Aortic Aneurysms
- c) Involvement in the care of emergency abdominal aortic aneurysms during the early assessment and as an assistant in the operating room
- d) Pre-operative risk assessment for aortic surgery, including cardiac function
- e) Active involvement with the post-operative care of critically ill patients in the intensive care unit. An understanding of the treatment of cardiac arrhythmias, renal failure, respiratory impairment and coagulopathies
- f) Understanding of graft technology and composition
- g) Understand the indications and contraindications for endoluminal graft placement
- h) Understanding of Aortic Dissection

The Diabetic Foot

- a) Approach to the assessment and work-up of a patient with a diabetic foot
- b) An understanding of the non-operative treatments available
- c) An appreciation of the role of revascularization of the diabetic limb

Venous Disease

- a) Understand the etiology, assessment and management of common venous disorders, including varicose veins, post-phlebotic syndrome and leg ulcerations
- b) The place of non-invasive venous investigations, including hand held Doppler
- c) The indications for and an understanding of venous reconstruction
- d) Understanding of the prevention, risk factors, diagnosis and treatment of deep vein thrombosis and coagulation abnormalities

Cerebrovascular Disease

In this expanding specialty, practice may change and the number of operations increase. The resident should develop an understanding of duplex scanning of the carotid arteries, cerebral angiography and cerebral CT or MRI Scanning.

Vascular Access

- a) The resident should understand the principles regarding long-term vascular access. Examples include patients receiving chemotherapy or home TPN
- b) The resident should know the different types of catheter available, and their relative indications and contraindications
- c) The resident should also be familiar with different vascular procedures to provide access for both short and long-term hemodialysis.

Rehabilitation of the Amputee

- a) Residents will have experience in the rehabilitation of amputees and a full appreciation and understanding of the various needs and requirements of the patient and the services that can be mobilized.

Vascular Trauma

- a) Residents should understand the principles of treatment for vascular trauma: prioritization of injuries, diagnosis of vascular injury, proximal and distal control, knowledge of when to repair versus ligate, and an understanding of ischemia-reperfusion syndrome including compartment syndrome.

Visceral Circulation

- a) Residents will gain an understanding of the differential diagnosis, treatment options and outcomes of acute and chronic mesenteric ischemia
- b) Residents will understand the investigations and indications for treatment of renovascular disease

Knowledge: Technical Skills

By the end of the rotation in vascular surgery the resident must demonstrate the following:

- a) Aseptic technique in performing operative and bedside procedures
- b) Recognize the appearance of normal & abnormal tissues in the Operating room
- c) Understand the principles of patient positioning, preparing and draping for common vascular surgery procedures.

Operative procedures that the resident should be able to perform competently under appropriate supervision by the end of the rotation include (assuming availability of cases):

- a) Exposure, isolation and control of the femoral vessels
- b) Suturing of vascular anastomoses or parts thereof
- c) Saphenous vein harvesting
- d) Varicose veins, saphenofemoral dissection, stripping and ligation
- e) Femoral embolectomy
- f) Lower leg fasciotomies
- g) Insertion of central venous lines

Operative procedures on which the resident should be able to assist competently include:

- a) AV fistulas for hemodialysis
- b) Intra-abdominal vascular procedures
- c) Extracranial carotid artery surgery
- d) Revascularization procedures of the extremities
- e) Amputations

2. Communicator

- a) The resident must demonstrate the communication skills necessary to obtain thorough, focused histories from patients, family members and other care-givers
- b) In the ambulatory clinic the resident must present patient histories and physicals with management plans to the attending surgeons
- c) The resident must write appropriate admission notes, consultation notes, operative notes, and daily progress notes in a timely fashion
- d) The resident must dictate accurate and timely operative reports and discharge summaries
- e) The resident must convey pertinent information from the history and physical examination in different circumstances (over the phone, during ward rounds and conferences)
- f) The resident must explain procedures at a level appropriate for patients and their families to understand in order to gain informed consent

3. Collaborator

- a) The resident must understand the importance of collaboration with family physicians, surgical colleagues, other medical specialists, nurses and other hospital and community health care providers in achieving optimal comprehensive care for patients with vascular surgical problems.

4. Manager

- a) The resident must recognize that the care of vascular surgery patients requires the ability to work effectively in a health care team comprising a range of health care workers
- b) The resident is expected to take direction from the faculty and senior vascular surgery residents; the resident should supervise medical students, and provide appropriate guidance and teaching for them.

5. Health Advocate

- a) The resident should be aware of the factors beyond surgical care that contribute to quality of life for patients. Examples include the use of tobacco and lifestyle choices that contribute to the development of diabetes or aggravate the management of diabetes in addition to the principles of primary and secondary prevention of cardiovascular disease
- b) The resident should also identify situations where advocacy is appropriate.

6. Scholar

- a) The resident must prepare for teaching rounds, ward rounds and operating room cases with adult learning principles and evidence-based medicine
- b) The resident should critically evaluate patient outcomes and participate actively in morbidity rounds and mortality rounds on the vascular surgery service
- c) The resident should demonstrate a strategy to learn the basic science and clinical aspects of vascular surgery as outlined in this document
- d) The resident must develop the capacity to access and apply relevant information as well as new and current therapeutic options to clinical practice
- e) The resident should pose questions that will provide the basis for clinical research.

7. Professional

- a) The resident must appreciate the emotional and ethical issues surrounding the care of patients with vascular disorders and the need to involve family members and other health care-givers in certain situations
- b) The resident must recognize her/his limits, make independent decisions when appropriate, but keep senior residents, fellows and attending surgeons informed
- c) The resident must value the critical need of ongoing systems of peer review, maintenance of competence, and evaluation of outcomes in the surgical management of patients with vascular disorders
- d) The resident must be aware of the ethics of research concerning patients
- e) The resident must demonstrate effective consultation services with respect to patient care, and education