VASCULAR SURGERY LEARNING OBJECTIVES

General Objectives

Upon completion of the Vascular Surgery rotation, the General Surgery resident is expected to:

- Demonstrate knowledge, clinical and technical skills and decision-making capabilities pertinent to the management of patients with vascular disorders
- Demonstrate vascular surgical technical skills pertinent to the practice of a general surgeon

Specific Objectives

At the completion of the Vascular Surgery rotation, the General Surgery resident will have acquired the following competencies and will function effectively as:

Medical Expert

- Establish and maintain clinical knowledge, skills and attitudes appropriate to the Vascular Surgery rotation
  - Apply knowledge of the clinical, socio-behavioral and fundamental biomedical sciences relevant to the Vascular Surgery rotation

The resident in General Surgery is required to attain sufficient knowledge as follows:

Vascular Anatomy
- Arterial anatomy
- Venous anatomy
- Anatomy of the lymphatic system

Vascular Assessment
- Diagnostic imaging, including:
  - Angiography
  - CT angiography
  - Doppler and duplex ultrasound
  - Segmental pressure measurements

Arterial Disorders
- Peripheral arterial occlusive disease, including:
  - Atherosclerosis
  - Acute thromboembolic disease
  - Chronic occlusive disease
  - Peripheral aneurysms
- Renovascular occlusive disease
- Abdominal aortic aneurysms
- Extracranial cerebrovascular disease
- Vasospastic disorders
- Principles of endovascular surgery

Mesenteric Ischemia
- Acute mesenteric arterial occlusion
- Nonocclusive mesenteric insufficiency
- Chronic mesenteric insufficiency
- Mesenteric venous occlusion

Arteriovenous Fistula

Venous Disease
- Venous thromboembolic disorders, including:
  - Deep venous thrombosis, including:
    - Prophylaxis
    - Diagnosis and management
  - Chronic venous insufficiency
- Portal hypertension

Lymphatic Disorders
- Lymphedema
- Thoracic duct disorders
- Chylothorax
- Chyloperitoneum
- Lymphatic neoplasia
Compartment Syndromes
Vascular Trauma
Vascular access and Ports

- Perform a complete and appropriate assessment of the vascular surgical patient
  - Elicit a history that is relevant, concise and accurate
  - Perform a focused physical examination that is relevant and accurate
  - Select medically appropriate investigations in a resource-effective and ethical manner
  - Demonstrate effective clinical problem solving and judgment to address the vascular surgical problems, including interpreting available data and integrating information to generate differential diagnoses and management plans

- Use preventive and therapeutic interventions effectively
  - Implement an effective and prioritized management plan for the vascular surgical patient
  - Demonstrate effective, appropriate and timely application of therapeutic interventions relevant to the Vascular Surgery rotation
  - Ensure appropriate informed consent is obtained for therapies

- Demonstrate proficient and appropriate use of procedural skills
  - Demonstrate effective, appropriate and timely performance of diagnostic procedures relevant to the Vascular Surgery rotation
  - Demonstrate effective, appropriate and timely performance of therapeutic procedures relevant to the Vascular Surgery rotation
  - Ensure appropriate informed consent is obtained for procedures
  - Appropriately document and disseminate information related to procedures performed and their outcomes
  - Ensure adequate follow-up is arranged for procedures performed
  - Compile and maintain an accurate and complete electronic data base for all operative procedures performed on the Vascular Surgery rotation

Having completed the Vascular Surgery rotation, the General Surgery resident will be able to demonstrate knowledge and technical competence in performing the following procedures:
- Doppler vascular assessment
- Central venous catheter insertion
- Portacath insertion
- Control of major hemorrhage/vascular control in the operating room, including:
  - Cross-clamping of the aorta
  - Proximal and distal control of blood vessels
- Operative exposure of the aorta and its major branches
- Operative exposure of the inferior vena cava
- Repair of a traumatized artery
- Patching of a diseased artery
- Management of arterial emboli
- Minor and major amputations of the lower extremity
- Vascular anastomosis
- Varicose vein treatment, including:
  - Ligation
  - Stripping
  - Sclerotherapy
- Fasciotomy for compartment syndrome

- Seek appropriate consultation from other health professionals
  - Demonstrate insight into his/her own limitations of expertise by self-assessment
  - Demonstrate effective, appropriate and timely consultation of another health professional as needed for optimal care of the vascular surgical patient
  - Arrange appropriate follow-up care services for the vascular surgical patient

Communicator

At the completion of the Vascular Surgery rotation, the General Surgery resident will be able to:

- Develop rapport, trust and ethical therapeutic relationships with patients and families
  - Establish positive therapeutic relationships with patients and their families that are characterized by understanding, trust, respect, honesty and empathy
  - Respect patient confidentiality, privacy and autonomy
  - Listen effectively

- Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues and other professionals
  - Seek out and synthesize relevant information from other sources such as the patient’s family, caregivers and other professionals

- Accurately convey relevant information and explanations to patients and families, colleagues and other professionals
- Deliver information to the vascular surgical patient and family, colleagues and other professionals in a humane and understandable manner

- **Convey effective oral and written information**
  - Maintain clear, accurate, appropriate and timely records of clinical encounters and operative procedures involving the vascular surgical patients
  - Maintain an accurate, complete and up-to-date electronic database (log) of operative procedures performed during the Vascular Surgery rotation
  - Effectively present verbal reports of clinical encounters and medical information during the Vascular Surgery rotation

**Collaborator**

At the completion of the Vascular Surgery rotation, the General Surgery resident will be able to:

- **Participate effectively and appropriately in an interprofessional healthcare team**
  - Recognize and respect the diversity of roles, responsibilities and competences of other professionals in the management of the vascular surgical patient
  - Work with others to assess, plan, provide and integrate care of the vascular surgical patient
  - Demonstrate leadership in the day-to-day running of resident/student team activities on the Vascular Surgery rotation

**Manager**

At the completion of the Vascular Surgery rotation, the General Surgery resident will be able to:

- **Manage his/her professional and personal activities effectively**
  - Set priorities and manage time to balance professional responsibilities, outside activities and personal life
  - Employ information technology effectively (e.g. electronic surgical procedure database)
- **Demonstrate an understanding of cost-effectiveness in patient management**
  - Utilize hospital resources wisely when managing patients
- **Serve in leadership roles, as appropriate**
  - Participate effectively at teaching rounds and other meetings

**Health Advocate**

At the completion of the Vascular Surgery rotation, the General Surgery resident will be able to:

- **Respond to the needs of the vascular surgical patient**
  - Identify the health needs of an individual patient

**Scholar**

At the completion of the Vascular Surgery rotation, the General Surgery resident will be able to:

- **Maintain and enhance professional activities through ongoing learning**
  - Pose an appropriate learning question
  - Access and interpret the relevant evidence
  - Integrate new learning into development as a general surgeon
- **Critically evaluate medical information and its sources and apply this appropriately to clinical decisions**
  - Critically appraise the evidence in order to address a clinical question
  - Integrate critical appraisal conclusions into clinical care
- **Facilitate the learning of students and residents**
  - Demonstrate an effective presentation while assigned to the Vascular Surgery rotation
  - Provide effective feedback to faculty, residents and students

**Professional**

At the completion of the Vascular Surgery rotation, the General Surgery resident will be able to:

- **Demonstrate a commitment to patients through ethical practice**
  - Exhibit appropriate professional behaviors, including honesty, integrity, commitment, compassion, respect and altruism
  - Appropriately manage conflicts of interest
  - Recognize the principles and limits of patient confidentiality
  - Maintain appropriate relations with patients
- **Demonstrate a commitment to physician health**
  - Balance personal and professional priorities
  - Strive to heighten personal and professional awareness and insight