

**Division of Vascular Surgery
General Surgery Resident Goals, Objectives, and Curriculum**

The following pages describe the goals and objectives for the General Surgery Residents who rotate through the Division of Vascular Surgery. The curriculum, the conference schedule, the methods of evaluation, and a list of critical references are included.

GOALS:

1. General Surgery Residents who rotate through the Vascular Surgery Service will be able to perform an accurate evaluation of the arterial, venous, and lymphatic circulatory systems.
2. Residents will be proficient in the medical and surgical management, sufficient to treat patients with uncomplicated arterial, venous, and lymphatic disorders.

OBJECTIVES:

In order to achieve these goals, the Vascular Surgery Rotation has the following objectives:

1. Post-graduate year (PGY)-1

a. Patient Care

1. The resident will demonstrate the ability to take a complete, accurate, and useful history and physical examination from patients with vascular diseases.
2. The resident will demonstrate the ability to order appropriate noninvasive vascular testing (vascular lab, CT imaging, MR imaging), and invasive diagnostic testing (angiography).
3. The resident will demonstrate the ability to appropriately prescribe non-operative treatment for arterial, venous, and lymphatic disorders.
4. The resident will demonstrate the ability to perform operative vascular procedures commensurate with their level of training (central venous line placement, wound closure, digit amputations, forefoot and midfoot amputations, below-knee and above-knee amputations, varicose vein phlebectomy).
5. The resident will demonstrate the ability to manage peri-operative care for patients with vascular disorders, including recognition and appropriate treatment of complications.

b. Medical Knowledge

1. The resident will possess adequate knowledge of the anatomy and physiology of the arterial, venous, and lymphatic systems. The resident will possess a basic understanding of the pathology of arterial, venous, and lymphatic disorders.

c. Practice-Based Learning and Improvement

1. The resident will demonstrate the ability to review the general medical literature, and integrate knowledge of new medical evidence into practice decisions, specific to vascular surgery.

d. Interpersonal Skills and Communication

1. The resident will demonstrate the ability to communicate effectively and professionally with patients, families, referring physicians, colleagues, nurses, and staff.
2. The resident will demonstrate the ability to provide and request appropriate consultation from other medical specialists.

2. PGY-2

In addition to the previously listed objectives, the PGY-2 resident will be responsible for the following:

a. Patient Care

1. The resident will be able to articulate a complete and efficient plan for diagnosis of vascular disorders, based upon medical knowledge, history, and physical exam.
2. The resident will demonstrate the ability to interpret accurately, and efficiently use the information from noninvasive vascular testing (vascular lab, CT imaging, MR imaging) and invasive diagnostic techniques (angiography).
3. The resident will demonstrate the ability to perform operative vascular procedures commensurate with their level of training (the procedures listed for PGY-1 residents, dialysis access surgery, basic arterial anastomoses for lower extremity bypass surgery).
4. The resident will demonstrate the ability to manage peri-operative care for patients with vascular disorders, including intensive care management, including the use of vasoactive medications, artificial ventilation, and invasive hemodynamic monitoring.

b. Medical Knowledge

1. The resident will possess a more in-depth understanding of the anatomy and physiology of the arterial, venous, and lymphatic systems.

3. PGY-4

In addition to the previously listed objectives, the PGY-4 resident will be responsible for the following:

a. Patient Care

1. The resident will demonstrate the ability to perform operative vascular procedures commensurate with their level of training (the procedures listed for PGY-1 and PGY-2 residents, carotid artery surgery, aortic and lower extremity arterial surgery).

CURRICULUM:

In order to achieve the above goals and objectives, the Vascular Surgery Service has established the following curriculum for General Surgery Residents:

- 1. Duration of the rotations**
 - a. 1st year residents – 1 month
 - b. 2nd year residents – 6 weeks
 - c. 4th year residents – 6 weeks
- 2. Shared curriculum elements.** Regardless of post-graduate year, the General Surgery Residents share numerous common activities:
 - a. Academic conferences
 - i. Vascular Journal Club – meets every other Wednesday at 0700 for one hour. Key papers from the current literature serve as the basis for discussion. Attended by vascular faculty, residents, and medical students.
 - ii. Morbidity and Mortality Conference – meets every Monday at 1700. Attended by all Department of Surgery faculty, residents, and students.
 - iii. Vascular Surgery Core Lectures – meets every other Wednesday at 0700. Vascular Surgery Faculty in rotation give 20-30 minute presentations in one of the core areas of vascular surgery knowledge. Attended by vascular faculty, residents, and medical students.
 - iv. The John M. Porter Memorial Lecture Series – meets every Saturday from October through May at 0830. Lectures cover the broad range of vascular surgery including clinical, basic science, and research topics. Attended by vascular faculty, interventional

radiology faculty, vascular residents, interventional radiology residents, general surgery residents, medical students, and community surgeons and radiologists.

- v. Vascular Surgery Clinical Case Conference – meets every Saturday at 0930. Discussion of clinical cases from the Vascular Surgery Service and from community practices. Attended by vascular faculty, interventional radiology faculty, vascular residents, interventional radiology residents, general surgery residents, medical students, and community surgeons and radiologists.

b. Clinics

- i. Vein Clinic – meets weekly on Tuesdays from 1300-1630. Outpatients with disorders of the venous and lymphatic systems are evaluated and treated. Attended by vascular faculty, vascular residents, general surgery residents, and medical students.
- ii. General Vascular Clinic – meets every Wednesday from 0830-1630. Outpatients with arterial, venous, and lymphatic disorders are evaluated. Attended by vascular faculty, vascular residents, general surgery residents, and medical students.

c. Operating Suite

- i. Major and minor vascular surgical procedures are performed throughout the week. General Surgery Residents perform these procedures with the vascular faculty.

3. Call responsibilities

- a. Weeknights – There is no in-hospital call. The PGY-1 and PGY-2 General Surgery Residents share night call responsibilities in rotation. The PGY-4 General Surgery Resident shares night call responsibility with the 1st and 2nd year Vascular Surgery Residents.
- b. Weekends – There is no in-hospital call. The PGY-1 and PGY-2 General Surgery Residents share weekend call responsibilities in rotation. The PGY-4 General Surgery Resident shares weekend call responsibility with the 1st and 2nd year Vascular Surgery Residents. Weekends include Friday night, Saturday, and Sunday. On average, the PGY-1 and PGY-2 residents have every other weekend off. On average, the PGY-4 resident has two of three weekends off.
- c. Vacations – The PGY-1 and PGY-2 residents cover each other's vacations. The PGY-4 resident and the 1st and 2nd year Vascular Surgery Residents cover each other's vacations.

4. Evaluation of General Surgery Residents: Evaluation of residents includes computerized evaluation forms, a computer-based examination, faculty discussion of resident evaluations/ progress, and verbal/ written feedback for the residents.

- a. Computer-based examination: A computer-based multiple choice examination has been created. The topics for these tests are covered in any

one of the required textbook readings listed below, or in the list of seminal articles which are distributed to the residents at the beginning of the rotation. The test can be taken at any time during or after the rotation. The test can be saved in part, and finished at a later date. Completion of the examination is required for successful completion of the rotation.

- b. After every rotation, each faculty member receives an electronic evaluation form for each resident, via the VERINFORM system. This evaluation covers all of the objectives listed in Objectives Section.

5. Core Subject Material

- a. Topics in Thrombosis
 - i. Anti-platelet agents
 - ii. Anticoagulants
 - iii. Thrombolysis
- b. Atherosclerosis and its medical management
- c. The Vascular Laboratory
- d. Principles of Diagnostic and Interventional Angiography
- e. Cerebrovascular Disease
- f. Upper Extremity Ischemic
- g. Mesenteric Vascular Disease
 - i. Acute mesenteric ischemia
 - ii. Chronic mesenteric ischemia
 - iii. Non-occlusive mesenteric ischemia
- h. Renovascular Disease
- i. Aneurysmal Disease
 - i. Aortoiliac aneurysms
 - ii. Femoro-popliteal aneurysms
 - iii. Visceral and renal aneurysms
- j. Peripheral Vascular Disease
 - i. Claudication
 - ii. Rest pain
 - iii. Non-healing ulceration
 - iv. Gangrene
- k. Vascular Access
- l. Vascular Trauma
- m. Venous Thromboembolic Disease
 - i. Superficial phlebitis
 - ii. Deep venous thrombosis
 1. DVT prophylaxis
 2. Calf and proximal DVT
 3. Pulmonary embolism
 - iii. Varicose veins
- n. Lower extremity amputations

6. Reading List and Key References

- a. Schwartz's Principles of Surgery, 8th Edition, pages 717-833.

- b. Sabiston Textbook of Surgery, 17th Edition, Section XII Vascular
- c. Greenfield, 2005 Edition, Vascular Surgery Section