

## VASCULAR GOALS AND OBJECTIVES (PGY1-5)

### GOALS

Through rotation on the vascular surgery service, residents shall attain the following goals:

#### **I. Patient Care**

A. Preoperative Care Setting: outpatient clinic and inpatient service (primary and consultation)

Residents will evaluate and develop a plan of care for patients with vascular conditions, both medical and surgical. The plan shall include any pre-operative treatments and/or work-up that will successfully prepare the vascular patient for surgery

- i) The resident will perform complete and detailed history and physical examinations of patients being considered for elective as well as urgent/emergent surgery (PGY 1-5)
- ii) The resident will learn to obtain and interpret laboratory and radiologic tests, including vascular lab imaging, that are appropriate for the condition being treated and/or the procedure being planned (PGY 1-5)
- iii) The resident will demonstrate an understanding of the principles of preoperative patient selection and optimization (ie cardiopulmonary risk assessment; tobacco use disorder and cessation counseling, nutritional status; special considerations such as thrombophilias and bleeding disorders, steroid dependent patients, dialysis dependent patients, timing of surgery with multiple comorbidities, and potentially emergent issue, etc...) (PGY 2-5)
- iv) The resident will participate in the informed consent process for patients being scheduled for elective and urgent/emergent procedures and surgeries. The informed consent process includes identifying and reviewing with the patient the risks, benefits and alternatives to the planned interventions (PGY 1-5)

B. Operative Care Setting: HVI ORs including hybrid OR and 5N

Prior to arriving in the operating room, the resident should have reviewed the case. This includes reviewing PMH, PSH, allergies, physical exam including a thorough vascular exam, imaging, AND discussing the operative approach with the attending. The following are a list of essential common operations that the resident(s) can be expected to have exposure to by the completion of their vascular surgery rotation:

- Arterio-venous fistula creation and care (PGY 1,2)
- IVC filter (PGY 1-3)
- Angiography (PGY 1-3)
- Angioplasty and arterial stenting (PGY 1-5)
- Digit amputation (PGY 1-3)
- Ray amputation (PGY 1-3)
- Below the knee amputation (PGY 3-5)
- Above the knee amputation (PGY 3-5)
- Femoral-popliteal bypass (PGY 3-5) Femoral-femoral bypass (PGY 3-5)
- Carotid endarterectomy (PGY3-5)
- Transcarotid revascularization (PGY 3-5)
- Thrombolysis (PGY 1-3)
- Thrombectomy (PGY 2-5)
- Lower extremity fasciotomy (1-5)

The following are a list of the complex operations that the resident(s) can be expected to have exposure =on their vascular surgery rotation. Exposure may vary depending on case volume for the rotation.

- Aortic aneurysm repair open (PGY 4,5)
- Aortic aneurysm repair endovascular (PGY 4,5) Axillofemoral bypass (PGY 4,5)
- Femoral-tibial bypass (PGY 3-5)

#### C. Postoperative Care Setting: inpatient floor, outpatient clinic

Residents shall develop and follow through with a plan of care for the post-operative vascular surgery patient. This includes routine post-operative checks and documentation. Plans include anticoagulation management, antiplatelet therapy, multimodal pain control, fluid and electrolyte management, resuscitation of critically ill patients, identification and treatment of common post-operative complications including bleeding, renal dysfunction, cardiac complications, neurological changes, neurovascular changes, compartment syndrome, , thromboembolism (among others). Post-operative disposition assessment, planning and coordination of any discharge needs including but not limited to facility placement, therapy needs, anticoagulation and antiplatelet management upon discharge and follow-up imaging including any necessary CTA and/or vascular lab imaging.

##### 1. HVI OR outpatient surgery

- A) The resident will follow up on any and all patient issues/concerns, pertinent post-operative tests, imaging studies prior to discharging a vascular surgery patient who has undergone an elective, same day procedure (PGY 1-5)
- B) The resident will successfully choose a multimodal oral analgesic home regimen that will adequately manage a vascular patient's pain who has undergone an elective, same day procedure (PGY 1-5)
- C) The resident will successfully complete and review with the vascular patient who has undergone an elective, same day procedure the patient's discharge instructions. Key points will include activity restrictions, new medications, wound care/drain instructions, bathing instructions, and reconciliation of the patient's medication list (PGY 1-5)
- D) The resident will successfully coordinate appropriate surgical follow up, which may include vascular medication management (anticoagulation, antiplatelets and statin therapy), follow-up imaging including any necessary CTA and/or vascular lab imaging, smoking cessation, physical therapy, and other provider follow-up in addition to with the surgeon (PGY 1-5)

## 2. Inpatient floor

- A) The resident team is expected to make morning rounds on the inpatient patient list prior to the start of the day's activities (OR cases, clinic) (PGY 1-5)
- B) After rounds, the chief resident on service, together with the vascular surgery fellow, is expected to discuss and develop plans with the attendings prior to OR first starts, usually 7-8 AM, on all patients, including consults. Then, these plans are to be communicated to the inpatient APP team.. For straightforward updates lower level residents (PGY 1-3) can have the discussion with the attendings as this is part of their progressive autonomy and learning. Common issues to be discussed should include vital signs, pain management (Is/Os, physical exam findings, daily labs, medication review, consultant recommendations. The daily plan will generally consist of identifying changes in patient condition, development of urgent/emergent conditions, advancement of diet, repletion of electrolyte abnormalities, adjustment of medications, management of anticoagulation and antiplatelet medications, drain and tube management, need for diagnostic tests to be ordered or new consults to be called and identifying discharge appropriate patients. **THE CHIEF RESIDENT IS TO CALL THE ATTENDING FOR ANY PATIENTS REQUIRING URGENT/EMERGENT CARE (PGY 4, 5)**
- C) The resident team will divide the work for the day in such a manner that it will be performed as accurately and efficiently as possible. Daily patient care including documentation should be clearly delegated amongst fellows, residents and APPs Priority should be given to obtaining and following up on important studies expeditiously as well as

discharges. The goal is to complete all discharges by noon on the day of discharge (PGY 1-5)

D) The intern or junior resident should provide as close to real time updates as possible with changes in patients condition, new consults, consultant recommendations, results of important tests to the chief resident who can then relay the information to the attending of record. During work hours, this is the attending of record for the patient unless otherwise specified. At night/weekends this should be directed to the on call attending. (PGY 1-3)

### 3. Outpatient clinic and vein procedure rooms

A) When circumstance allows, residents will see patient on whom they performed surgery for their first outpatient post-operative follow up visit. This will provide for continuity of care that will allow the resident to gain an understanding of the anticipated recovery from the various essential common and complex operations as well as gain experience in identifying instances in which deviation from the anticipated post-operative course is occurring as how such instances are approached and managed (PGY 1-5)

B) Residents will see vascular pre- and post-operative patients who are in longitudinal surveillance of their vascular disease. This experience will provide the resident with an initial exposure to the ongoing care of vascular patients, both medical and surgical, throughout the disease process (PGY 1-5)

C) All residents are expected to be in clinic if they are not in the operating room unless there is an emergency that cannot be handled by our advanced practice providers/fellows. (PGY 1-5)

## II. Medical Knowledge

Resident fund of knowledge as it relates to vascular surgery will be expanded through a variety means, some of which are structured and others of which require independent initiative from the residents who are rotating on the service. These include: 1) Conferences 2) Journal club 3) Assigned readings 4) TWIS quizzes 5) Cadaver and simulation lab

### 1. Conferences

A) Residents are expected to attend weekly Wednesday morning morbidity and mortality conference. Complications from the vascular surgery service are to be presented by the resident who was involved in the case in front of a group of their peers as well as the surgical faculty at large. The faculty involved in the case should be notified the case is being discussed. This conference will give residents an opportunity to think critically about specific steps in the preoperative workup, operative conduct and/or post-operative care of patients who have experienced a complication and identify opportunities for

alternative decisions in similar, future cases that may lead to improved outcomes. Evidenced based practice patterns should be emphasized when applicable (PGY 1-5)

B) Residents are expected to attend Monday afternoon teaching conference on the vascular surgery service. They are expected to be prepared for the discussion and questions and to participate in the conference. (PGY 1-5)

2. Journal Club: Residents are expected to lead discussion at vascular journal club. A yearly curriculum of high yield topics will be formulated by the faculty/fellows. (PGY1-5)
3. Assigned Readings: Residents will cover various vascular topics, among others, as part of their assigned weekly reading curriculum through the program at large. The SCORE curriculum is the chosen curriculum for the general surgery residency. Vascular faculty all participate in leading didactic discussion(s) at Wednesday morning education conference at different points in the year when appropriate topics are the assigned topic for the week. Additionally, residents are encouraged to educate themselves upon the scientific information relating to vascular disease and treatment. The recommended text for independent reading is Rutherford's Vascular Surgery.
4. TWIS Quizzes: Residents are expected to complete TWIS quizzes that are outlined in the program curriculum. Areas of deficiency as defined by their performance on the TWIS quizzes should serve as the focus for future study plans.
5. Cadaver and simulation lab: Residents will participate in vascular surgery didactic cadaver and simulation labs lead by vascular faculty at different points in the year.

### **III. Practice-based Learning**

Residents are expected to engage in critical self -review as it relates to the cases in which they participate, whether it be in the operating room, on the inpatient floors or in the outpatient setting.

1. Morbidity & Mortality Conference – Discussion should center on an evidence based discussion of quality improvement (PGY 1-5)
2. Residents shall keep logs of their cases and track their operative proficiency as gauged by whether they assisted or were the surgeon junior or senior or teaching assistant (PGY 1-5)
3. Residents shall distribute operative cards or have faculty fill out online performance review to attendings with whom they have performed

cases so that they can be filled out and placed into said resident's Clinical Competency Committee (CCC) folder (PGY 1-5)

4. Residents shall familiarize themselves with evidence based guidelines related to vascular disease prevention, patient safety and quality (SCIP measures, DVT prophylaxis guidelines, Vascular Quality Initiatives, etc), anticoagulation, antiplatelet therapy, , as well as hospital specific matters related to safety and quality (NSQIP data, QITI data, pharmacy formularies for hospital acquired infections, isolation precaution measures) (PGY 1-5)

#### **IV. Interpersonal and Communication Skills**

The vascular surgery service provides unique opportunities for residents to develop their interpersonal and communication skills, both in the context of physician to patient interactions as well as in interactions as part of the health care delivery team.

- A) Residents will be given the opportunity to observe (PGY 1) and eventually participate in (PGY 4, 5) the process of delivering bad news to patients and their families/friends. These opportunities exist in the outpatient as well as the inpatient setting and arise in the context of discussing diagnostic findings, treatment limitations and prognosis (among others)
- B) Residents will also be called upon to communicate the daily plan and progress of patients admitted to the hospital to patients, their family and the entire healthcare team involved in the care of that particular patient. The healthcare team will include nurses, therapists, social work, dietitians, and other physicians serving as consultants (PGY 1-5)
- C) Residents shall learn to document their practice activities in such a manner that is clear, concise, up-to-date and accurate in accordance with the standards of medicolegal documentation (PGY 1-5)
- D) Residents shall participate in the informed consent process for patients being scheduled for elective and emergent/urgent procedures and surgery (PGY 1-5)
- E) Residents shall learn to give and receive detailed sign-out to facilitate continuity of care during handoffs (PGY 1-5)

#### **V. Professionalism**

The vascular surgery rotation offers many opportunities for residents to hone their professionalism.

- A) Residents will have opportunities to learn how to be honest and sincere with patients. Examples include breaking bad news and explaining surgical complications (PGY 1-5)

- B) Residents shall demonstrate a commitment to the continuity of care of a patient within the confines of the 80-hour duty restrictions (PGY 1-5)
- C) Residents shall learn to maintain patient confidentiality (PGY1-5)
- D) Residents will learn the importance of accurate and timely medical documentation (PGY1-5)
- E) Residents will be expected to adhere to the hospital's code of professional conduct as it relates to appearance and dress (PGY 1-5)
- F) Residents will be expected to be punctual and prepared for all cases, clinics, and conferences that they are participating in on any given day. If they are unable to be on time due to patient emergencies, that should be communicated to the team in a timely manner (PGY 1-5)

## VI. Systems-based practice

The vascular surgery rotation provides residents with inpatient and outpatient opportunities to grow within the systems based practice core competency.

- A) Residents will learn to practice high quality, cost effective, evidence based patient care. This knowledge will be gained through participation in the conferences listed above in the medical knowledge competency and include the M&M, weekly conference, journal clubs and cadaver and simulation labs (see discussion about each of these above) (PGY 1-5)
- B) Residents will be educated about and held accountable for compliance with the surgical care improvement project (SCIP) standards as well as Vascular Quality Initiatives as they relate to the perioperative care of vascular surgery patients and include but are not limited to reducing surgical site infection(s) through the appropriate use and choice of perioperative antibiotics, eliminating or reducing catheter associated urinary infections by early removal of indwelling catheters from post-operative patients and ensuring patients are on necessary vascular medications (anticoagulants, antiplatelets and statins) (PGY 1-5)
- C) Residents will be exposed to protocol driven practices as they related to central line insertion in patients, including temporary dialysis catheters, selection of antibiotics for hospital acquired infections based on institution specific resistance patterns, blood transfusion criteria, and observation of contact precautions for patients with multidrug resistant infections (among others) (PGY 1-5)
- D) Residents will be educated about the National Surgical Quality Improvement Project (NSQIP) measures and outcomes as well as Vascular Quality Initiatives and how they relate to the changing landscape of hospital performance measures, reimbursement patterns for individual providers and hospital systems at large (PGY 1-5)
- E) Residents will be educated on the multidisciplinary role of vascular care and expected to be able to communicate with those teams to optimize

care (PGY 1-5)