GOALS AND OBJECTIVES
VANDERBILT UNIVERSITY MEDICAL CENTER
VASCULAR SURGERY Integrated Residency PROGRAM

OVERALL GOALS & OBJECTIVES

The overall goal of the vascular surgery residency (0+5) at Vanderbilt University Medical Center is to produce a fully trained, competent, and independent practitioner of vascular surgery who can pursue a career in this specialty either in the private or academic setting. The educational program is 60 months in duration. The essential learning activity is interaction with patients under the guidance and supervision of faculty members. The resident will be interacting with patients in a number of outpatient and inpatient scenarios, including outpatient clinics, hospital wards, ICUs, catheterization laboratories, and operating rooms. The clinical educational program will be supplemented by regularly scheduled didactic sessions that include biweekly Morbidity and Mortality conferences, quality improvement projects, a quarterly journal club, and a structured series of conferences covering the basic and clinical sciences fundamental to vascular surgery. The annual objectives and goals for our integrated vascular trainees are based on the Vascular Surgery Milestones developed by the ACGME. PGY1-3 residents will also be required to participate in the Fundamentals of Vascular Surgery skills curriculum.

PGY1
The focus of the first year (PGY-1) of residency will be on the transition from student to physician. Nine of the twelve months of this year residents will rotate on general surgery, cardiothoracic surgery, and other core surgical rotations while the remaining three months will be on the vascular surgery service.

Objectives of the PGY1 General Surgery Rotations: (in addition to expected by General Surgery PD)

- Develop ability to elicit and present a history and physical examination of surgical patients
- Understand the initial approach to the surgical patient and develop a differential diagnosis for the new patient or one for a new problem on a patient already on the surgical service to develop a treatment plan and present the patient to the senior resident and the attending in a cohesive fashion
- Manage basic peri-operative problems e.g. fever, pain, hypoxia
- Write daily notes on assigned patients, clearly delineating treatment plan and explaining the need for continued hospitalization
- Describe and recognize expected longitudinal care and follow up required for patients
- Able with guidance to prepare a patient for surgery, including pre-operative orders labs and diagnostic tests
- Describe indications for the surgery which they are participating in
- Describe danger and critical points of a procedure
- Knowledge of how to identify and report patient safety events
- Develop knowledge of care coordination and able to safely hand off patients in care transitions
- Accurately records information in the patient record, including appropriate use of documentation templates
- Become increasingly efficient in the clinics and wards to timely complete the day's tasks
- (develop efficient work flows and familiarity with both the structural medical environment

- as well as the electronic medical record systems).
- Assess the degree of pain on an appropriate scale and document it on the progress
- note, with appropriate plans for treatment.
- Understand the chain of command on the surgical service:
    - Inform senior resident and attending of new admissions or changes in status of patients already on the service
    - When in doubt, call senior resident, Advanced Practice Provider, chief resident or attending on the service for assistance
    - In an emergency call for help from any available resident, nurse, code team escalation and inform the responsible attending
    - Interpret and identify appropriate management strategies for febrile and bleeding patients
- Develop basic surgical clinical skills, including, but not limited to:
    - Phlebotomy and IV catheter placement
    - Suturing and knot tying
    - Recognition and correct application of various surgical devices, i.e. retractors,
    - stapling devices
    - Performing a focused assessment of a patient for preoperative medical workup
    - and appropriate consent for procedures
    - Effective assistance in the operating room
    - Basic skills with open surgical instruments
    - Credentialing in the following procedures:
    - Nasogastric tube placement
    - Wound VAC placement
    - Drain removal, closed suction
    - Drain removal, pigtail type
    - Chest tube removal
    - Chest tube insertion
    - Foley catheter insertion
    - Primary wound closure, simple
    - I&D, abscess
    - Arterial line insertion, radial
    - Arterial line insertion, femoral
    - Ultrasound-guided vascular access
    - Tunneled dialysis catheter removal

Vascular Surgery Specific Rotation Objectives

- Describe risk factors for vascular disease
- Develop ability to elicit and present a history and physical examination of surgical patients
- Manage basic peri-operative problems e.g. fever, pain, hypoxia
- Describe and recognize expected longitudinal care and follow up required for patients
- Able with guidance to prepare a patient for surgery, including pre-operative orders labs and diagnostic tests
- Describe indications for the surgery which they are participating in
- Demonstrating basic surgical skills and bedside procedures e.g. drain removal, dressing or wound VAC change
- Able to obtain ultrasound guided access to a vessel

- Begins to identify various imaging modalities and personally review images
- Identify patients who need surgery
- Identity types of procedures available for a patients pathology
- Describe danger and critical points of a procedure
- Knowledge of how to identify and report patient safety events
- Develop knowledge of care coordination and able to safely hand off patients in care transitions
- Accurately records information in the patient record, including appropriate use of documentation templates

Medical Knowledge

All scheduled conferences are "protected time" from routine clinical duties.
Only in an event of a medical emergency will the resident be excused from attending the conference. Throughout the first post-graduate year, the 0+5 vascular resident is expected to:

- Attend weekly conferences
- Review pertinent literature on conference topics in advance.
- Read standard general surgery and vascular surgery texts to begin to develop a broad fund of knowledge.
- Participate in the annual VSITE examinations and strive for a >60% correct on the latter test.
- Review results of standardized tests with the program director and direct self-learning based on these results
- Come to the operating room prepared to discuss the particular case, regional anatomy, pathophysiology, steps of the operation
- Share their knowledge with medical students and other residents
- Attend the Ultrasound Guided Access Skills Class under the guidance of Dr. Deyholos/Stone
- Participate in the Houston Methodist Cardiovascular Bootcamp (or similar)
- Participate in skills labs based on Fundamentals of Vascular Surgery

Practice-based Learning and Improvement

Throughout the first post-graduate year, the 0+5 vascular resident is expected to utilize their own experience and assimilation of the scientific data for learning, reflection, and patient care improvement by:

- The use of internet resources, as well as the standard surgical texts to optimize learning.
- Developing on-going personal learning projects including the maintenance of accurate,
- timely, and updated operative logs which will facilitate review
- Maintenance of accurate, up-to-date credentialing for invasive procedures
- Incorporation of all formal presentations into Teaching Portfolios/CV's
- Reviewing in-service exam results and learning about topics which were not answered
- correctly, as a means of directing self-study
- Preparing for assigned elective operative cases by review of the regional anatomy,
- pertinent pathophysiology and steps of the surgical procedure.
- Participating in morbidity and mortality conferences and the associated Quality
- Assurance process at each site.
- Reviewing the global assessment form/monthly evaluation with the program director to

understand the resident's own weaknesses and strengths and developing a plan of correction with the program director, if necessary

Interpersonal and Communication Skills

From the beginning of training, the 0+5 vascular resident is expected to

- Develop communication skills that result in effective and professional communication with patients, patients' families and members of the health care team.
- Participate in the outpatient clinics and ward rounds by presentation of the patient to the faculty member in charge of the patient.
- Initiate the plan of care discussion with the patient
- Document accurate and appropriate information in the patient's medical record.
- Be present when the attending assesses the patient and discusses the disease process and plan of care with the patient
- Participate in the discussion with the patient's family members.
- Provide accurate information to a consulting service, such as when a radiological test is required or a specialist is requested.

Professionalism

Throughout the first post-graduate year, the 0+5 vascular resident is expected to

- Dress professionally at all times, and as appropriate for clinics, operating room and
- when outside the hospital.
- Maintain professionalism in all clinical arenas-bedside, operating room, outpatient
- department, and hallways/elevators.
- Respect patient privacy by not discussing anything related to patient care issues in
- public places.
    - HIPPA training will assist with understanding patient privacy issues and legal aspects of patient confidentiality.
- Understand the definition of physician impairment and the prevalence of this problem as well as how it may potentially affect a physician's personal life and impact patient care.
- Act professionally towards all members of the health care team and other co-workers and expect the same in return.
    - If at any time, any resident feels persecuted, harassed, or threatened in any form, these concerns must be reported to the program director, or her designee, or the Department's confidential reporting system and the appropriate action and referrals will be made.
- Complete records in a timely fashion, including
    - medical records, operative dictations, and discharge summaries
    - residency case logs
    - duty hours
    - evaluations of rotations, of attendings and the program

Systems-based Practice

Throughout the first post-graduate year, the 0+5 vascular resident is expected to

- Demonstrate awareness of the differences between health care systems
- Demonstrate awareness of the role insurance companies play in healthcare
- Demonstrate awareness of the Vascular Quality Initiative and maintain patient records in
- such a way that data can easily be extracted
- Demonstrate awareness of National QA initiatives such as the Joint Commission and

SCIP programs and work effectively in their context.

- Participate in case management conferences to develop awareness of the close and necessary ties between clinical and other services, especially in the discharge planning arena.
- Be familiar with the Joint Commission standards and National Patient Safety Goals.
- Understand and respect HIPPA regulations and patient privacy
- Participate in the Department's Quality Assurance process

PGY2

Second year integrated vascular surgery residents will again spend 9/12 months on non-vascular surgical rotations. Focus this year will be on seeing consultations, caring for critically ill patients, and increasing skill set in the operating room and in reviewing radiologic studies.

General Surgery Rotation Objectives: (in addition to expected by General Surgery PD)

- Develop and perfect the art of history taking, physical examination
- Improve in the clinical and didactic skills developed as a PGY1
- Orders and interprets diagnostic testing; establishes differential diagnosis
- Identifies therapies for risk factor modification
- Manages common perioperative problems (e.g., post-operative myocardial infraction)
- Describes the expected longitudinal care for patients with complex vascular disease
- Interprets clinical data to identify opportunities for pre-operative optimization
- Demonstrates respect for tissue, and is developing skill in instrument handling
- Improve on the basic surgical skills, i.e. suturing, knot tying, needle drivers, using fine vascular sutures.
- Develop understanding of commonly performed open surgical operations and their related anatomy, (e.g. inguinal herniorrhaphy, soft tissue tumor resection, cholecystectomy, creation of dialysis access, venous ablation procedures).
- Become familiar with more advanced surgical skills and technologies, i.e. vascular suturing, shunts, ultrasonography, control of the fixed-imaging x-ray systems etc.
- Develop leadership skills to become role model to interns
- Teach the medical students
- Maintain competency in skills in which the resident has been credentialed as PGY-1.

Vascular Surgery Rotation Objectives

- Orders and interprets diagnostic testing; establishes differential diagnosis
- Identifies therapies for risk factor modification
- Manages common perioperative problems (e.g., post-operative myocardial infraction)
- Describes the expected longitudinal care for patients with complex vascular disease
- Interprets clinical data to identify opportunities for pre-operative optimization
- Demonstrates respect for tissue, and is developing skill in instrument handling
- Performs basic vascular procedures with limited supervision
- Uses ultrasound to safely obtain percutaneous arterial and/or venous access in most patients
- Selects wires and catheters and demonstrates basic wire handling techniques and performs most catheter exchanges without losing wire position
- Uses imaging findings to support differential diagnosis and preoperative plan for basic vascular procedures
- Synthesizes clinical data to choose an open surgical procedure versus endovascular intervention
- Synthesizes clinical data to choose an endovascular intervention versus open surgical procedure
- Describes procedural sequence and equipment needs, and understands critical decision points of basic procedures
- Describes intra-operative findings associated with a crisis
- Coordinates multidisciplinary care of patients in routine clinical situations

Medical Knowledge
Throughout the second post-graduate year, the 0+5 vascular resident is expected to:

- Continue to build on the knowledge base gained as a PGY-1
- Prepare and deliver presentations for conferences commensurate with increased knowledge, ability and maturity.
- Reading vascular surgical journals and focus on both broad-based surgical knowledge and on particular surgeries or clinical problems encountered
- Focused exploration of potential research opportunities.
- Concentrate on the basic sciences in preparation for the in-service "junior" exam
- Review topics for the VSITE exam, concentrating on areas of weakness revealed by exam results from the prior year and maintain a >65% correct on the test.
- Review topics in preparation for the RPVI examination: the physics of ultrasound, technical aspects of performing examinations and providing accurate interpretations
- Continue to prepare for assigned elective operative cases by review of the regional anatomy, pertinent pathophysiology and steps of the surgical procedure.
- Expand teaching responsibilities to medical students and interns
- Further advance their use of multimedia for presentations and lectures

Practice-based Learning and Improvement
Throughout the second post-graduate year, the 0+5 vascular resident is expected to continue to utilize their own experience and assimilation of the scientific data for learning, reflection, and patient care improvement by:

- The use of internet resources, as well as the standard surgical texts to optimize learning.
- Developing on-going personal learning projects including the maintenance of accurate, timely, and updated operative logs which will facilitate review
- Maintenance of accurate, up-to-date credentialing for invasive procedures
- Incorporation of all formal presentations into Teaching Portfolios/CV's
- Reviewing ABSITE/VSITE results and learn about topics which were not answered correctly, to direct self-study
- Preparation for assigned elective operative cases by review of the regional anatomy, pertinent pathophysiology and steps of the surgical procedure.
- Participation in morbidity and mortality conferences and the associated Quality Assurance process at each site.
- Reviewing the monthly evaluation with the program director to understand the resident's own weaknesses and strengths.
- Developing a plan of correction with the program director, if necessary

Interpersonal and Communication Skills
As the level of clinical responsibility increases, the importance of communicating effectively becomes even more important. Throughout the second year of training, the 0+5 vascular resident is expected to:

- Continue to develop communication skills that result in effective and professional communication with patients, patients' families and members of the health care team.
- Respond promptly to a consultation and be courteous to the referring service, remembering that frequently relationships with fellow housestaff may become important in the future.

- Assess the patient and, in a non-emergent situation, reflect on the findings
- carefully
- Seek opinions from senior residents and other physicians if needed.
- Evaluate the patient and the data independently, without any preconceptions or
- influence by the opinions of others
- Discuss impressions with the patient, the referring team, and the senior/chief
- resident or a surgical attending.
- Judge the urgency of the situation accurately and summon help as needed, including
- from supervising residents and attendings
- Document critical changes in patient condition or care in the medical record.

Professionalism

As in the first post-graduate year, the second-year 0+5 vascular resident is expected to

- Dress professionally at all times, and as appropriate for clinics, operating room and when outside the hospital.
- Maintain professionalism in all clinical arenas-bedside, operating room, outpatient department, and hallways/elevators.
- Respect patient privacy by not discussing anything related to patient care issues in public places.
    - HIPPA training will assist with understanding patient privacy issues and legal aspects of patient confidentiality.
- Understand the definition of physician impairment and the prevalence of this problem as well as how it may potentially affect a physician's personal life and impact patient care.
- Act professionally towards all members of the health care team and other co-workers and expect the same in return.
    - If at any time, any resident feels persecuted, harassed, or threatened in any form, these concerns must be reported to the program director, or her designee, or Vanderbilts confidential reporting system and the appropriate action and referrals will be made.
- Maintain records in a timely fashion, including
    - medical records, operative dictations, and discharge summaries
    - residency operative logs
    - evaluations of rotations, of attendings and the program

Systems-based Practice

Throughout the second post-graduate year, the 0+5 vascular resident is expected to

- Participate in case management conferences to develop awareness of the close and necessary ties between clinical and other services, especially in the discharge planning arena.
- Develop familiarity with the Vascular Quality Initiate (VQI) database

PGY3

Now having a solid foundation in general surgery and vascular surgery basics, third year residents will spend the majority of the year on the vascular surgery services (10/12 months). They will also spend a dedicated month in the vascular lab developing skill and proficiency in both performing and interpreting vascular lab studies. They will be expected to complete and pass the ARDMS Registered Physician Vascular Interpretation (RPVI) Certification Exam (which is a prerequisite for the Vascular Surgery Qualifying exam) by then end of their PGY4 year and eligibility for this examination requires documented review of at least 500 vascular lab studies. They will also spend 1 month on vascular medicine rotation.

Patient Care

Throughout the third post-graduate year, the 0+5 vascular resident is expected to

- Continue to improve clinical skills developed as a junior resident.
- Assume a more visible supervisory and leadership role on the surgical team.
- Become the resident responsible for the consultations on your service
- Coordinate and supervise PGY2s evaluative and consultative services and skills.
- Become an active liaison between the primary service, chief residents, and the surgical attendings.
- Become familiar with the more extensive surgical procedures and relevant anatomy, i.e. colectomy, exploratory laparotomy, open/endovascular aortic and carotid procedures, basic and some of the advanced endovascular techniques and procedures, lower extremity bypass/angioplasty and some of the more advanced open procedures. independently assess patients, make plausible and evidence-based treatment plans in most scenarios
- Independently interpret most imaging to suggest surgical approaches
- Synthesize patient data, including diagnostic imaging, to arrive at an organized hierarchical differential diagnosis for basic disease processes, to include primary and secondary treatment options
- Recognize endpoints, contraindications, and complications of medical therapy
- Recognize and manages complex peri-operative problems, including vascular complications, critical care, and palliative care
- Recognizes the impact of disease progression and complications on the longitudinal care plan
- Recognizes when procedural plan must change due to patient factors or disease progression identified in pre-operative work-up For intermediate procedures, ensures necessary imaging, instrumentation, equipment, devices, and medications are available; positions, prepares, and drapes patient appropriately
- Handles vascular instruments with increasing efficiency of motion during procedures
- Performs basic vascular procedures independently and intermediate vascular procedures with limited supervision
- Troubleshoots and manages basic procedural challenges
- Uses imaging findings to support differential diagnosis and preoperative plan for intermediate vascular procedures
- Develops a specific operative plan for the current clinical situation, understanding alternative surgical options
- Describes procedural sequence and equipment needs, and understands critical decision points of intermediate procedures
- Describes appropriate response to a crisis, including imaging and possible interventions

- Performs safe and effective transitions of care/hand-offs in complex clinical situations

Medical Knowledge

Throughout the third post-graduate year, the 0+5 vascular resident is expected to:

- Continue to build on the knowledge base gained in the previous two years.
- Engage in more in-depth, researched preparation for assigned operative cases.
- Prepare presentations for conferences commensurate with increased knowledge, ability and maturity.
- Continue reading standard surgical texts supplemented by surgical journals
- Concentrate on the basic sciences in preparation for the ABSITE "senior" exam
- Review topics in preparation for the VSITE exam, concentrating on any areas of weakness identified by previous examination, and maintain a >65% correct on the test.
- Gain more expertise in ultrasound topics in preparation for the RPVI examination: the physics of ultrasound, technical aspects of performing examinations and providing accurate interpretations, under the tutelage of Drs. Brewster and Teodorescu
- Expand teaching responsibilities to medical students and junior residents
- Be completely versed in the medical management of vascular surgery patients

Practice-based Learning and Improvement

Throughout the third post-graduate year, the 0+5 vascular resident is expected to:

- Continue to develop Practice-based learning and Improvement skills from the junior years
- Thoroughly review evaluations and use them as an objective guide for improvement as deficiencies are better understood and the strengths more apparent through feedback.
- Track changes in evaluations for any identified deficiencies, consulting with a mentor or the program director to help institute change
- Use the department's resources and faculty to work on any identified technical deficiency
- Begin to hone leadership and teaching skills
- Active teaching of topics or skills will reinforce knowledge on particular topics.
- Prepare for formal discussions and presentations using the library and other resources available at the Medical School and other on-line resources

Interpersonal and Communication Skills

Based on the foundation of information and experience acquired in the junior years, the third year 0+5 vascular resident is expected to:

- Understand the need to communicate professionally and effectively at a more advanced level.
- Accurately communicate with residents at all levels, students, different services and attendings
- Recognize that frequently information must be conveyed to those with less experience
- Be patient as communication with those less experienced must be conducted in a professional, and not condescending, manner.
- Write timely, complete consultations.
- Act as a role model to assist junior residents in acquiring good communication skills.
- Communicate with the patients and, when appropriate, the patients' families courteously and professionally.

Professionalism
The third year 0+5 vascular resident is expected to:

- Lead by example
- Dress professionally at all times, and as appropriate for clinics, operating room and when outside the hospital with attention to personal and hospital hygiene.
- Show compassionate patient care which is ethical and respectful.
- Demonstrate professionalism by preparation for the elective cases, pre-operative assessment of the patient, and conduct in surgery that is deferential to the patient and to the experience of the supervising attending.
- Communicate with the attending surgeon(s) daily to coordinate the preoperative plan and post-operative care of the patients.
- When appropriate, provide the patient with the pertinent information, deferring to the attending surgeon discussions dealing with difficult matters, such as complications and when treatment options are limited/futile.
- Be present when difficult discussions do take place

Systems-based Practice
As in the second post-graduate year, the third-year 0+5 vascular resident is expected to

- Participate in case management conferences to develop awareness of the close and necessary ties between clinical and other services, especially in the discharge planning arena.
- Help junior residents facilitate patient care requirements involving multidisciplinary care.
- Develop familiarity with the Vascular Quality Initiate database
- Observe and evaluate opportunities to improve work flows in the clinic, on the wards and in the operating room

Vascular Medicine Rotation Objectives
The Vascular Medicine Rotation at VUMC Fellows. Residents completes a one-month rotation. They participating in outpatient clinics, , and inpatient consults.
Fellows participates in the vascular medicine clinic two half-days a week. They care for patients with peripheral arterial and venous disease. Typical patients include those with claudication, limb-threatening ischemia, leg edema due to venous obstruction or insufficiency, and renal vascular hypertension.

- Be knowledgeable and competent in the process of taking thorough clinical history and performing comprehensive vascular physical examination. Understand how to evaluate the patient with common vascular complaints including leg edema, claudication, and aneurysmal disease
- Understand the indications for peripheral endovascular angiography and interventional procedures
- Able to calculate an ankle brachial index, interpret a carotid and arterial duplex ultrasound, and interpret a venous duplex for deep venous thrombosis and venous reflux disease
- Learn how to identify a patient with critical limb ischemia and refer him or her a vascular interventionist
- Learn to identify and treat acute venous thromboembolism with medical or catheter based therapy for, deep vein thrombosis
- Learn to identify the causes and treatment of refractory leg edema. Understand therapeutic

options such as conservative management, venous ablation, and venous stenting
- Know the complications and risks of invasive and interventional peripheral procedures
- Be able to interpret basic peripheral angiography
- Learn to effectively identify and risk stratify high cardiovascular risk patients, who present with critical limb ischemia
- Learn to optimize medical therapy in the long-term care and management of patients with peripheral artery disease, to prevent future cardiovascular events in this high-risk population.

Vascular Lab Rotation Objectives

- The vascular laboratory rotation will consist of hands-on assessment of comprehensive vascular pathology. This will include understanding IAC protocols and preparation for Registered physician interpretation examination.
- Understanding imaging techniques including b- mode and doppler waveform patterns in normal and pathologic states, understanding physics of imaging and other limitations of imaging, i.e severely calcified vessels
- Hemodynamic testing: Segmental pressures, ankle pressures and toe pressures with interpretation of pressure readings.
- Fundamentals and indications for non-invasive imaging.
- Cerebrovascular and intracranial imaging waveform analysis Temporal artery imaging
- Peripheral vascular imaging: upper extremity and lower extremity arterial waveform patterns in resting and exercise state
- Mesenteric and renal imaging
- Venous imaging- for thrombotic conditions and for insufficiency
- Preparation for interpretation of the required 500 below
    - **Clinical Vascular Ultrasound Experience and preparation for RPVI credentials required for sitting for the American Board of Surgery Vascular Surgery Qualifying examination.**
    - The Applicant is required to document vascular interpretation experience in a clinical diagnostic setting with a minimum of
      500 cases interpreted over a minimum of one month
    - **Cases must be distributed over the following testing areas, with no more than 50% of the total coming from any one area:**
    - • Carotid duplex ultrasound (extracranial cerebrovascular).
      • Transcranial Doppler (intracranial cerebrovascular).
      • Peripheral arterial physiologic testing (excludes Ankle Brachial Index (ABI) and single level exams).
      • Peripheral arterial duplex ultrasound.
      • Venous duplex ultrasound.
      • Visceral vascular duplex ultrasound.

PGY 4

By fourth year, integrated vascular surgical residents will be wholly focused on developing as vascular surgeons. They will spend 2 months on vascular related elective rotations to complement their skill sets and prepare them for independent practice in a variety of settings. Throughout the fourth post graduate year, the 0+5 resident is expected to:

- Continue to improve clinical skills developed in earlier years
- Assist and teach to improve the junior residents' surgical skills (eg. booklet)
- Establish complete responsibility of running the service under the direction of the
- supervising surgical attending on services where there is no more senior resident/fellow
- Coordinate all conferences in collaboration with the site director or responsible attending
- Coordinate care for all patients on the service and consults.
- Scrub in operations on cases of complexity and variety suitable for the most senior
- resident on the service.
- Synthesizes patient data, including diagnostic imaging, to arrive at an organized hierarchical differential diagnosis for complex disease processes with advanced comorbidities, to include primary and secondary treatment options
- Independently interpret advanced imaging to make surgical approaches
- Formulates a comprehensive plan of medical management for patients with vascular disease, including risk factor modification
- Become progressively independent in the majority of surgical techniques, able to teach
- junior residents simple and moderately complex procedures.
- Become more familiar with complex surgical procedures and equipment
- Leads team and provides supervision in the evaluation and management of complex peri-operative problems, including vascular complications, critical care, and palliative care
- Independently alters longitudinal care based on disease progression, complications, or patient-specific issues
- Proposes alternative surgical plan due to patient factors or disease progression identified in preoperative work-up
- For advanced procedures, ensures necessary imaging, instrumentation, equipment, devices, and medications are available; positions, prepares, and drapes patient appropriately
- Proficiently handles instruments and equipment, uses assistants, guides the conduct of the operation, and makes independent intraoperative decisions; anticipates when assistance is needed
- Performs advanced vascular procedures, including troubleshooting and managing complications with limited supervision
- Uses imaging findings to support differential diagnosis, pre-operative plan, and intra-operative decision making for advanced vascular procedures
- Adapts management plan for changing clinical situations
- Describes procedural sequence and equipment needs, and understands critical decision points of advanced procedures
- Anticipates patient specific risk for crisis and describes appropriate treatment algorithm and potential outcomes, including conversion to an alternate procedure

Medical knowledge

The fourth year 0+5 vascular resident is expected to:

- Build on the medical knowledge foundation of the previous three years
- Prepare Power Point presentations for the assigned didactics, case conference and M&M conferences
- Assist junior residents in preparation and execution of talks, anticipate questions
- Prepare for the Morbidities and Mortalities Conferences at each rotation site.
- **Pass the RPVI examination**
- Take the VSITE exam and maintain a >70% correct on the test.

Practice-based Learning and Improvement

Throughout the fourth post-graduate year, the 0+5 vascular resident is expected to:

- Continue to develop Practice-based learning and Improvement skills
- Thoroughly review evaluations and use them as an objective guide for improvement as deficiencies are better understood and the strengths more apparent through feedback.
- Track changes in evaluations for any identified deficiencies, consulting with a mentor or the program director to help institute change
- Use the department's resources and faculty to work on any identified technical deficiency
- Continue to hone leadership and teaching skills
- Active teaching of topics or skills will reinforce knowledge on particular topics.
- Prepare for formal discussions and presentations using the library and other resources available at the Medical School and other on-line resources

Interpersonal and Communication Skills

The fourth year 0+5 vascular resident is expected to:

- Become a leader of the surgical team using graduated experiences of the prior years.
- Understand that being a leader requires delicacy, skills of diplomacy, and profound respect for the patients and all members of the health care team.
- Appreciate the strengths and weaknesses of team members, remembering that "weaker" residents present a challenge to leadership and communication skills
- Be patient!
- Supervise and guide junior residents with appropriately timed and tempered feedback.
- Counsel or reprimand junior residents privately.
- Be respectful of the diversity encountered among the staff and patients across the various institutions.
    - Attempt to resolve disagreements with other healthcare workers amicably and not in the presence of patients.

    Discuss difficult situations where there is potential to escalate and any other unresolved
- issues with the supervising attending.

Professionalism

As in the third year, the fourth year 0+5 vascular resident is expected to:

- Lead by example- maintain high attendance to conferences and rarely be late
- Dress professionally at all times, and as appropriate for clinics, operating room and
- when outside the hospital.
- Show compassionate patient care which is ethical and respectful.
- Demonstrate professionalism by preparation for the elective cases, pre-operative
- assessment of the patient, and conduct in surgery that is deferential to the patient and to
- the experience of the supervising attending.

- Communicate with the attending surgeon daily to coordinate the post-operative care of the patient.
- When appropriate provide the patient with the pertinent information, deferring to the
- attending surgeon discussions dealing with difficult matters, such as complications
- Be present when difficult discussions do take place
- Dress appropriately with attention to personal and hospital hygiene.

Systems-based Practice

The fourth year 0+5 vascular resident is expected to:

- Understand Quality Assurance issues at each institution as there may be differences.
- Help junior residents to navigate through difficulties that working in an unfamiliar
- institution may pose.
- Participation in the institutional and departmental quality assurance committees

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PGY5

By Fifth year, residents should have a comprehensive and thorough understanding of vascular surgery pathologies and procedures and the ability to care for the most critical patients. They also have increased administrative responsibilities and are required to coordinate and lead other team members. The end goal of this year is to become a competent, safe, practice ready vascular surgeon. PGY5 residents will spend most of the year on vascular surgery rotations however they will spend 2 months on a vascular related elective rotation where they feel they require extra focus or case numbers depending on where they plan to practice post graduation (e.g interventional radiology, cardiology, outpatient vascular, vascular lab, wound care)

- Supervise all aspects of management of the surgical patients on the respective services in all level of complexity
- Provide leadership to the entire team of the surgical residents and medical students
- Assist in the credentialing of junior residents in their surgical skills requirements
- Assist faculty in daily clinical and educational activities of the department
- Act as a teaching assistant to the junior residents when appropriate and under the supervision of the surgical attending
- Coordinate the multidisciplinary conferences with other services and assignment of the presentations to the senior and junior residents.
- Independently evaluate complex medical scenarios, interpret complex imaging and establish evidence-based approaches to patient care, with meticulous attention to detail and anticipation of complications or bailout techniques and open and endovascular surgery.
- Synthesize patient data, including diagnostic imaging, to arrive at an organized hierarchical differential diagnosis for rare disease processes and variants of complex disease processes
- Proposes novel medical treatment algorithms or therapies based on new literature
- Establish total continuity of care, and accept responsibility for the patients on the service,
- Assure that the outpatient experience for every rotation that optimizes the continuity of
- care.
- Perform complex operative cases with skill and competence indicating readiness to
- operate independently
- Having passed the RPVI exam, participate in interpreting studies in the vascular lab
- Works with the interdisciplinary care team to develop new pathways to prevent peri-operative vascular complications
- Innovates new aspects of longitudinal care for patients with vascular disease by considering the most updated evidence-based guidelines
- Handles instruments and equipment independently without supervision, guides the conduct of the operation, and makes intra-operative decisions
- Competently teaches intermediate vascular procedures
- Adapts and innovates management plan for changing clinical situation
- Improves quality of transitions of care within team and to optimize patient outcomes
- Acts as a mentor and coach to junior team members in developing interpersonal and communication skills and giving and receiving feedback

Medical knowledge

The fifth year 0+5 vascular resident is expected to:

- Possess a broad-based fund of medical knowledge that encompasses the entire field of vascular surgery
- Prepare Power Point presentations for the weekly Case Conferences and M&M conferences
- Assist junior residents in preparation and execution of talks, anticipate questions
- Prepare for the Morbidities and Mortalities Conferences at each rotation site.
- Participate in the Annual UCLA Symposium,, a course which provides an in-depth review of the specialty of vascular surgery in preparation for the vascular board examinations
- Take the VSITE and obtain a >70% correct
- Have definitively passed the RPVI exam

Practice-based Learning and Improvement

Throughout the fifth post-graduate year, the 0+5 vascular resident is expected to:

- Assimilate into daily practice the lessons of the prior years and build onto this foundation a life-long practice of learning, reflection, and humility.
- Thoroughly review evaluations and use them as an objective guide for improvement as deficiencies are better understood and the strengths more apparent through feedback.
- Track changes in evaluations for any identified deficiencies, consulting with a mentor or the program director to help institute change
- Use the department's resources and faculty to work on any identified technical deficiency
- Continue to hone leadership and teaching skills using all available resources within and external to the institution
- Active teaching of topics or skills will reinforce knowledge on particular topics.
- Prepare for formal discussions and presentations using the library and other resources available at the Medical School and other on-line resources

Interpersonal and Communication Skills

The fifth year 0+5 vascular resident is expected to:

- Be capable of clearly explaining complex medical scenarios and surgical techniques to patients without medical education, as well as to clearly describe and educate students trainees and ancillary medical staff with all degrees of experience and training.
- Be able to accept constructive criticism and deliver it when needed
- Be willing to accept errors that are legitimately attributable to oneself, follow them always within open apology while also liberally complement others in public or in private as indicated.

- Understand that being a leader requires delicacy, skills of diplomacy, and profound
- respect for the patients and all members of the health care team.
- Appreciate the strengths and weaknesses of team members, remembering that “weaker” residents present a challenge to leadership and communication skills, rather than be marginalized.
- Be patient and demonstrate this skill in the most stressful of environments!
- Supervise and guide junior residents with appropriately timed and tempered feedback
- Counsel or reprimand junior residents privately and only when truly appropriate.
- Be respectful of the diversity encountered among the staff and patients across the various institutions.
- Attempt to resolve disagreements with other healthcare workers amicably and not in the presence of patients.
- Manage difficult situations where there is potential to escalate with less need for direction from the supervising attending
- Do not accept inappropriate, demeaning or destructive communication from others and never distributed yourself.

Professionalism

The fifth year 0+5 vascular resident is expected to:

- Lead by example and become the role model that brought you into this field
- Maintain high attendance to conferences and rarely be late
- Dress professionally at all times, and as appropriate for clinics, operating room and when outside the hospital.
- Demonstrate more fully formed leadership skills demonstrable by a cohesive team whose goal oriented and uses teamwork to succeed
- Appreciate that physicians are lifelong students at various stages of personal and professional development and go out of your way to improve the development of others

Systems-based Practice

The fifth year 0+5 vascular resident is expected to:

- Understand Quality Assurance issues at each institution as there may be differences.
- Help junior residents to navigate through difficulties that working in an unfamiliar
- institution may pose.
- Identify areas for quality improvement and act upon the