The **purpose** of this document is to familiarize residents and fellows with the objectives of the Division of Vascular Surgery and the routines of the Service.

## Attending phone numbers

<table>
<thead>
<tr>
<th>Name</th>
<th>Telephone</th>
<th>Pager</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Bernadette Aulivola</td>
<td>72669</td>
<td>10438</td>
</tr>
<tr>
<td>Dr. Paul Crisostomo</td>
<td>72686</td>
<td>74894</td>
</tr>
<tr>
<td>Dr. Pegge Halandras</td>
<td>72679</td>
<td>11335</td>
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<tr>
<td>Dr. Richard Hershberger</td>
<td>72897</td>
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## Other useful phone numbers

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<tr>
<th>Name</th>
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<tr>
<td>Secretarial Support Staff</td>
<td></td>
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<tr>
<td>Clare Lopez</td>
<td>73431</td>
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</tr>
<tr>
<td>Donna</td>
<td>72387</td>
<td>73492 (fax)</td>
</tr>
<tr>
<td>Nurse</td>
<td></td>
<td></td>
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<tr>
<td>Kim Maas</td>
<td>72809</td>
<td>13265</td>
</tr>
<tr>
<td>Nurse Practitioner</td>
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<tr>
<td>Patti Gigliotti</td>
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<td>15865</td>
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<td>Operating Room (Main)</td>
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<td>Recovery Room</td>
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<td>Cath Lab (Main)</td>
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<td>Emergency Department</td>
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<td>West</td>
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<tr>
<td>Inpatient</td>
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<tr>
<td>Hines VA</td>
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LOYOLA UNIVERSITY MEDICAL CENTER
RESIDENCY PROGRAM IN GENERAL SURGERY
CLINICAL ROTATION DESCRIPTION

Vascular Surgery – Loyola / Hines VA

Educational Objectives

GOALS (General Competencies - ACGME):

1. **Patient Care** that is compassionate, appropriate, and effective for the treatment of health programs and the promotion of health.
2. **Medical Knowledge** about established and evolving biomedical, clinical, and cognate sciences, as well as the application of this knowledge to patient care.
3. **Practice-based learning and improvement** that involves the investigation of care for their patients, the appraisal and assimilation of scientific evidence, and improvements in patient care.
4. **Interpersonal and communication skills** that result in the effective exchange of information and collaboration with patients, their families, and other health professionals.
5. **Professionalism**, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to patients of diverse backgrounds.
6. **Systems-based practice**, as manifested by actions that demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

Weekly Teaching Conferences

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Conference</th>
<th>Location</th>
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<tbody>
<tr>
<td>Monday</td>
<td>5:00-6:00pm</td>
<td>Departmental M&amp;M</td>
<td>Surgery dept</td>
</tr>
<tr>
<td>Wednesday</td>
<td>7:30-8:30am</td>
<td>Dept. Grand Rounds</td>
<td>Tobin Hall</td>
</tr>
<tr>
<td>Thursday</td>
<td>7:30-8:30</td>
<td>Jr Resident Teaching</td>
<td>Exec conf room</td>
</tr>
<tr>
<td>Friday</td>
<td>7:00-8:00am</td>
<td>Vascular Topics Conf</td>
<td>Surgery dept</td>
</tr>
<tr>
<td>Friday</td>
<td>8:00-9:00am</td>
<td>Vascular Case Conf</td>
<td>Surgery dept</td>
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<tr>
<td>Friday (alt)</td>
<td>9:00-10:00am</td>
<td>Research and Skills</td>
<td>Surgery dept</td>
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</table>
Specific Educational objectives for PGY1s (Interns)

The PGY1s will be expected to assume resident responsibilities on the ward, in the emergency department and operating room. By the completion of the rotation, PGY1s should have skills in the following:

GOAL #1 PATIENT CARE:
- History and physical examination of the arterial and venous systems.
- Problem identification, differential diagnosis and plan of investigation.
- Preoperative risk assessment and management of the vascular surgical patient (i.e. diabetes, cardiac, respiratory, renal).
- Fluid and electrolyte management.
- Postoperative complications (assessment and management).
- Technical skills expected include insertion of a nasogastric tube, venipuncture, catheterization of the bladder, arterial blood gases, skin suture, wound care. Operating room experience at this level will largely depend on the individual resident.

GOAL #2 MEDICAL KNOWLEDGE:
- Principles of noninvasive vascular laboratory evaluation of the carotid and peripheral arteries, and veins.
- Principles of angiography, CT scan, MRI, and MRA.
- Anatomy of the vascular system.
- Anticoagulation: physiology of the platelets, blood coagulation and fibrinolytic systems. Pharmacologic intervention on the platelet, coagulation and fibrinolytic systems.
- Arterial aneurysms: detection, evaluation and management.
- Extracranial cerebrovascular disease: detection, evaluation and management.
- Lower extremity occlusive disease: detection, evaluation and management.

GOALS # 3,4,5 AND 6 (SEE COMMON GOALS PAGE )

Educational objectives for PGY 2s and 4s

The general educational objectives for PGY 2s and 4s rotating on the Vascular Surgery Service are (1) to develop an understanding of clinical, radiological and non-invasive methods of assessment of arterial, venous, and lymphatic disease, (2) to be able to apply these methods to localize the site of arterial and venous disease, (3) to understand the principles of management, and (4) to gain technical expertise with the exposure arteries and veins pertinent to the practice of their core specialty.
The specific educational objectives are outlined in the following sections:

**GOAL #1: PATIENT CARE**

Given a patient with vascular (arterial, venous or lymphatic) disease, the resident will be able to do the following to the satisfaction of his/her supervisor(s):

- Take a relevant history.
- Perform an acceptable physical exam concentrating on the relevant areas.
- Arrive at an appropriate differential diagnosis
- Order appropriate laboratory, radiological and other diagnostic procedures demonstrating knowledge in the interpretation of these investigations.
- Arrive at an acceptable plan of management demonstrating knowledge in operative and nonoperative management of the disease process.
- Manage patients in the ambulatory setting, demonstrating knowledge of common office techniques and procedures.
- Manage the patient throughout the entire in-hospital course, demonstrating knowledge of and being able to treat potential complications of disease processes and operative procedures and their treatment.
- Provide a plan for patient follow up.

**Technical Skills**

At the end of the rotation on the vascular service, the resident must be able to show technical competence in the following procedures to the satisfaction of his/her supervisor(s). The extent of the skills will depend upon the level of training.

- Assisting (both first and second) in the operating room, developing a facility for anticipation of surgical maneuvers, gentle traction on tissues, and an ability to take direction well, to make reasonable suggestions and inquiry, and to contribute to a positive operating room atmosphere.
- Vascular access for hemodialysis
- Varicose (endovenous, vein stripping, ligation/avulsion).
- Exposure of arterial pathology at various sites without injury to artery or surrounding structures (i.e. femoral and brachial arteries and aorta).
- Femoral arterial embolectomy and thrombectomy.
- Fasciotomy.
- Vascular anastomosis of a large vessel.
- Control of hemorrhage
- Repair of traumatized artery.
- Patch of a diseased artery.
GOAL #2: MEDICAL KNOWLEDGE

Given a patient with vascular disease, the resident must be able to perform the clinical skills listed in the section above, and be able to demonstrate to the satisfaction of his/her supervisor(s), a fundamental knowledge and understanding of the general and specific areas listed below. The PGY 2s and 4s knowledge must be adequate to allow appropriate assessment, investigation, diagnosis, and treatment; the more senior resident's knowledge of the same areas must be more detailed, and include the incidence, etiology, pathophysiology, natural history, clinical diagnosis, investigation, management, prognosis and complications of each disease.

General Areas

- Anatomy and physiology of the arterial, venous and lymphatic systems, with emphasis on the arteries of the leg, the arterial and venous relationships at the inguinal region, the carotid bifurcation, the subclavian artery and vein, and the abdominal aorta and vena cava.
- Noninvasive and radiological assessment of the arterial, venous and lymphatic systems.
- Pharmacology as related to diseases of arteries and veins, especially chronic and acute arterial disease, deep venous thrombosis and pulmonary embolism.
- Natural history of arterial disease processes and outcome of a variety of vascular procedures.

Specific disease entities

- Arterial insufficiency of the legs, acute and chronic.
- Abdominal aortic aneurysm (asymptomatic and ruptured).
- Peripheral aneurysms.
- Carotid artery disease
- Renal hypertension.
- Associated diseases e.g. cardiac, respiratory, renal, diabetes.
- Varicose veins.
- Deep vein thrombosis.
- Compartment syndromes.

GOALS # 3,4,5 AND 6 (SEE COMMON GOALS PAGE )
Introduction

The fellow/senior resident in vascular surgery is expected to have completed the objectives described above for PGY 1, 2 and 4s.

In general, vascular surgery is concerned with the diagnosis and management of congenital and acquired diseases of the arterial, venous, and lymphatic circulatory systems, exclusive of the vessels intrinsic to the heart, the intracranial vessels and the thoracic aorta where surgery would require cardiopulmonary pump support (i.e. thoracic aortic surgery without pump is part of the vascular fellows education).

The fellow/senior resident in vascular surgery requires knowledge and technical skills relevant to the diagnosis and management of vascular disease. In addition, the fellow/senior resident should develop an understanding of the ethical, medical legal and socioeconomic concerns pertaining to patients with vascular disease, and should have complete familiarity with all issues of informed consent.

The behavior and actions of the fellow/senior resident represent the objectives and standards of the Division and consequently should be appropriate, ethical and at the highest level.

The following sections will summarize the vascular surgery objectives of the training program under the following headings: education, teaching, service and administration.

GOAL #1: PATIENT CARE

The fellow/senior resident is responsible for knowledge of the preoperative assessment and postoperative care including intensive care. This should include knowledge of relevant pharmacology and invasive monitoring techniques. Attendance in the ambulatory care units and in the noninvasive vascular laboratory is mandatory.

GOAL #2: MEDICAL KNOWLEDGE

The fellow/senior resident should know in detail the pathogenesis, etiology, physiological and biochemical changes and natural history of treated and untreated vascular diseases. He/she should be able to appropriately investigate patients with vascular disease, make judgments about the advisability of the alternative forms of treatment. He/she should be able to plan and carry out surgical procedures initially under supervision but subsequently without direct supervision.

In lieu of listing all the diseases of vascular surgery, the following general topics should be addressed in detail: occlusive arterial disease, aneurysms, diseases of the venous system, diseases of the lymphatic system, vascular access, thoracic outlet syndromes, the noninvasive vascular laboratory and intensive care management. Knowledge and skills related to each topic should include etiology, pathophysiology, diagnosis, natural history, alternatives of
management (non-operative, standard open repair, endovascular), results and complications, informed consent, independent skill in performing the relevant technical procedures with morbidity and mortality rates that are within the norm, independent postoperative care, compassionate and informed approach to the patient and relatives, and documented morbidity and mortality results.

Teaching

The fellow has a responsibility, along with the faculty, for teaching basic vascular principles to students and PGY 1, 2, and 4s on the ward, in the ambulatory clinic, in the operating room and in the Emergency Department. Organization of ward rounds and formal teaching rounds is an important component of this responsibility. The importance of acting as an important role model should be emphasized. He/she will review history and physical examination done by the students and junior house staff. He/she shall participate in teaching the PGY 1, 2 and 4 residents the basic vascular technical skills, e.g. a vascular anastomosis and arterial trauma repair. He/she shall assist in the assessment of students and the PGY 1, 2 and 4 residents.

Conference Responsibility

The fellows are responsible for arranging teaching conferences (listed above) and selecting topics in consultation with the attending surgeons. With Dr. Hershberger, the junior fellow is responsible for the content of the Friday morning vascular lab conference, and the senior fellow is responsible for the Friday morning topics, M&M, journal club conference. He/she should be familiar with current vascular literature and be capable of critical appraisal of the literature.

Service and Administration

The fellow will accept responsibility for the supervision and organization of the vascular surgery ward under the direction of the head of the division and attending surgeons. This includes planning admissions and discharges, booking investigations and procedures (open and endovascular), performing comprehensive preoperative work-up, checking preoperative status of patients, intensive care bookings, postoperative follow up, and organization of emergencies. In consultation with the other residents, the fellow is expected to organize who scrubs on each case, attends the clinics, and covers the ward and Emergency Department.

In addition, the fellow is responsible for regular mortality and morbidity audits. Knowledge of methods for assessing the outcome of treatment is expected. The fellow will be responsible for on-call scheduling and other duties as assigned by the head of the division.

Fellows are expected to keep an accurate record of their operative procedures, including the following details: patient name, hospital number, operation, whether or not he/she was surgeon, first assistant or teaching a junior house staff. Morbidity and mortality records should also be included. The American Board of Surgery expects these details. The Head of the Division should be asked to verify the accuracy of the data every 1-2 months. Validation at the end of the rotation is not possible.
The fellow is expected be familiar with the basic research studies that are ongoing in the division and to collaborate and help facilitate ongoing clinical research projects. Presentations and/or publications are expected from this research involvement.

COMMON GOALS TO ALL LEVEL RESIDENTS AND FELLOWS

GOAL #3: PRACTICE-BASED LEARNING & IMPROVEMENT

- Present cases concisely and clearly to peers, supervising surgeons and consultants.
- Use only approved abbreviations in the medical record.
- Search, evaluate, and critically review scientific evidence appropriate to the care of assigned patients. Data will be presented on teaching rounds, in the Operating Room, while discussing indications for procedures or during the patient care review conferences.
- Include evidence based references in M&M presentations and on rounds
- Use information technology to access clinical information, including performing online searches to support self-directed learning.

Practice-based learning will be assessed and measured by:

- Identify at least one evidence-based publication per day for operations performed by the resident during the rotation (PGY1, 2, 4) and discuss the publication with the attending surgeon.
- Evaluate M&M presentations of PGY2 and PGY4 residents for clarity and quality. Feedback will be provided immediately and during their semi-annual resident evaluations feedback sessions.

GOAL #4: INTERPERSONAL & COMMUNICATION SKILLS

- Discuss planned procedure with patient defining course of treatment and potential complications
- Present patients on teaching rounds and during patient care review conferences
- Assist students to prepare for patient presentations on rounds
- Present surgical complications at M&M (PGY2, 4)
- Serve as effective surgical team leader (PGY4)

Interpersonal and communication skills will be assessed and measured by:

- Direct observation on rounds or in clinic. PGY1, PGY2 and PGY4 residents will be observed discussing recommended treatment for several patients
- Direct observation of patient presentations during patient care review, rounds and conferences (PGY1, PGY2, and PGY4 residents)
• Evaluations by students on the service will be obtained regarding residents’ abilities to assist them with presentations, procedures and patient care management decisions

GOAL #5 PROFESSIONALISM

At the end of the rotation, the resident must have demonstrated to the satisfaction of his/her supervisor(s):

• The ability and willingness to work in a cooperative manner with other health care personnel, being sensitive to their roles and abilities, and to be able to give and receive advice in a manner that is consistent with the harmonious operation of a health care team.
• The ability to communicate with patients and their families, explaining to them their disease process and the benefits, risks, potential complications, alternatives of management and recommendations in terms each individual can comprehend.
• Respect for patient's rights to privacy.
• Sensitivity to the sexual, moral, ethical, or religious characteristics of the patient and family, understanding of the special psychological needs of the patient with vascular disease and the capacity for supportive and compassionate care in the course of terminal disease.
• Knowledge of the ethical and legal aspects of vascular surgery.
• Honesty, reliability, and respectfulness in working with patients and colleagues alike.
• The discipline of continued self-education and the appropriate application of this current knowledge to the clinical setting; the ability to supervise and educate undergraduate and postgraduate students in vascular surgery; the skills to educate colleagues, patients, families, and other health care professionals; the capacity to undertake research, and be aware of the importance of peer review of protocols, ethical considerations, and the limitations of such endeavors.
• Administer patient care conscientiously with highest standard of professional, ethical and moral conduct in all circumstances.
• Work with students, peers, superiors, nurses, health care professionals and other hospital staff colleagues in a courteous and thoughtful manner

Professionalism will be assessed and measured by:

• Direct observation by attending surgeons of postoperative or post procedural care plans and instructions as outlined by the resident with the patient and/or family members (at least one discussion per PGY1, PGY2, and PGY4 resident will be evaluated and feedback provided immediately. This exercise will occur weekly during the rotation for each resident.
- A 360-degree evaluation system (students, peers, faculty, nurses, other health care providers) will be used to evaluate residents’ performances in all geographic locations and throughout the day and night.

GOAL #6: SYSTEMS-BASED PRACTICE

- Understand the impact of surgical disease on an individual patient
- Identify needs of the patient as soon as possible (in clinic, on wards, in SICU, the Operating Room) to recruit assistance for the patient from appropriate sources (e.g. primary care, social services, pastoral support, hospice care, support groups, etc.,).

Systems Based Practice will be assessed and measured by:

- A report of experience either in outpatient clinic, during a multidisciplinary planning conference, hospice or support group planning session that specifically addresses the role of surgeons
- A 360-degree evaluation (students, peers, faculty, nurses, other health care providers) will be used to evaluate residents’ performances in all geographic locations, and throughout the day and night.

House staff organization

Fellow

The fellow is in charge of all patients on the service under supervision by the attending surgeons. Day to day responsibility may be delegated to other house staff. The fellow must be kept aware of all important events occurring on the service and must keep the staff surgeon informed as well.

PGY 1,2,4s

PGY 1,2,4 residents may be assigned to work directly with one or more staff surgeons. Although he/she will be primarily responsible for that group or patients, it is essential that he/she also have a working knowledge of all other patients on the service so that cross-coverage will be efficient. The degree of responsibility of patient care may vary according to experience of the resident and complexity of the patient problems.

Medical Students

Medical students will participate in patient care, write histories, progress notes under supervision of one of the other members of the house staff or
attending staff. Students will be relieved of ward and operating room responsibilities at the time of organized seminars and lectures. They must attend outpatient clinics and the operating room at the direction of the fellow in order to maximize their learning experience.

Attending Cross Coverage

In general, the attending surgeon on call provides coverage for all emergency admissions and operations. As a courtesy to the primary attending vascular surgeon, he/she should be notified first of admissions and planned operations, unless signed out.

Notification of the Attending Surgeon

Deteriorating Patient Status

In all cases the attending surgeon or the attending surgeon on call must be notified immediately when there is deterioration in a patient’s status. It is the responsibility of the fellow/PGY4 resident to ensure that the attending surgeon on call is notified of any problems or difficulties, which arise with the patients of an attending surgeon, who has signed out (vacation, academic meeting). The patient and the relatives should be informed of the name and telephone number of the attending surgeon on call if requested.

Deaths

Notify attending surgeon, fellow/senior resident, and relatives at once.

Miscellaneous

Responsibility for admission

The staff surgeon must be notified before any patient is admitted to the Vascular Surgery service. Conversely, only the staff surgeon can refuse to accept a patient in transfer.

Vacations

Ideally, for the fellow, half the vacation time should be taken in the first 6 months of the year and half in the latter 6 months of the year. The fellows must coordinate with the PGY4 resident such that only one of the fellows and/or PGY4 resident is away at any time. The same arrangements should be made for time away from the service for educational leave also.

PGY 1,2,4 residents must clear vacation requests with the senior fellow.
Research projects

All residents are encouraged to participate in ongoing research programs or to develop specific projects, which can be completed during their time on the service.

Reading

Fellows are encouraged to purchase a copy of Rutherford’s textbook "Vascular Surgery", to serve as the primary text resource. This resource is also available online.

Teaching

Part of the fellow/PGY4s responsibility is teaching as well as learning. Opportunities to educate more junior house staff, nurses and other staff should be encouraged.

Evaluations

Evaluations for fellows (end of each six month period), and for all PGY 1,2,4, residents are performed by attending staff. There will be a formal evaluation and an opportunity for house staff to evaluate the service. Informal feedback will be forthcoming from time to time during the period on the service. If specific discussion of progress is desired, the resident should arrange this at any time.

Open Surgical/ Endovascular Case Documentation

As part of the evaluation of the training program for the American Board of Surgery, as well as for application to several societies, accurate documentation of operative cases including name, hospital number, operation, surgeon/assistant and outcome are required.