



VASCULAR SURGERY
RESIDENCY PROGRAMME

PGY 6 and PGY 7

Objectives of Training and
Specialty Training Requirements

2006-2007

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VASCULAR SURGERY: OBJECTIVES FOR RESIDENTS TRAINING AS SPECIALISTS

OBJECTIVES OF TRAINING

DEFINITION

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.

Only candidates certified by the Royal College in General Surgery, Cardiac Surgery, Thoracic Surgery or Cardiothoracic Surgery may be eligible to undertake the examinations leading to a certificate of special competence in Vascular Surgery. (Please see the training requirements for those specialities)

GENERAL OBJECTIVES

In the course of the Vascular Surgery residency, residents must learn the methodology for the safe management of the patient with vascular problems and the knowledge necessary to: assess the patient's condition efficiently and accurately; prioritize the patient's needs; determine whether patient's needs exceed the facilities resources; ensure that optimal care is provided at all times.

On completion of the educational program, the resident will be competent to function as a consultant in vascular surgery. Residents must demonstrate the knowledge, skills and attitudes relating to gender, culture and ethnicity pertinent to Vascular Surgery. In addition, all residents must similarly demonstrate an ability to incorporate gender, cultural and ethnic perspectives in research methodology, data presentation and analysis.

SPECIFIC OBJECTIVES

At the completion of training, the resident will have acquired the following competencies and will function effectively as:

Medical Expert/Clinical Decision-Maker

Vascular surgeons possess a defined body of knowledge and procedural skills that are used to collect and interpret data, make appropriate clinical decisions, and carry out diagnostic and therapeutic procedures within the boundaries of their discipline and expertise. Their care is characterized by up-to-date, ethical, and cost-effective clinical practice and effective communication in partnership with patients, other health care providers, and the community. The role of medical expert/clinical decision-maker is central to the function of vascular surgeons and draws on the competencies included in the other major roles of scholar, communicator, health advocate, manager, collaborator, and professional.

General Requirements

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.

- Access and apply relevant information to clinical practice.
- Demonstrate effective consultation services with respect to patient care, education and legal opinions.

Specific Requirements

- Demonstrate cognitive understanding of patient care problems with vascular disease as well as the diagnostic and therapeutic skills to effectively and ethically manage these problems.
- Elicit a history that is relevant, concise, accurate and appropriate to the patient's problem(s).
- Perform physical examination that is relevant, sufficiently thorough, and appropriate and meets specialty specific standards and, if necessary, exceeds these standards.
- Select medically appropriate investigative tools in a cost-effective, ethical and useful manner.

Demonstrate an understanding of and the capacity to solve problems in relation to the following knowledge of:

- The anatomy, physiology, and pathophysiology of the circulatory system in health and disease, including arterial wall and cell biology, hemodynamics, and ischemia-related organ dysfunction.
- Biostatistics and epidemiology as they relate to vascular surgery.
- The differing patterns of disease, natural history, and responses to treatment of vascular disease in men and women and in different racial and cultural groups.
- Aneurysms of the aorta and other vessels
- Chronic lower extremity arterial occlusive disease
- Acute and chronic visceral ischemia including renal artery occlusive disease
- Extracranial cerebrovascular disease
- Intrathoracic non-coronary vascular disease
- Chronic upper extremity occlusive disease
- Thoracic outlet syndrome
- Acute arterial occlusion.
- Local and systemic complications of vascular therapy.
- Vascular trauma
- Aortic dissections

- Venous thromboembolic disease
- Chronic venous diseases
- Lymphedema
- Amputations
- Endovascular therapy
- Risk stratification
- Coagulation disorders
- Vasospastic disorders
- Non-atherosclerotic vascular disease
- Arterio-venous malformations
- Hemoaccess
- Noninvasive and invasive diagnosis and radiation safety
- Biological and synthetic grafts and complications.

Apply knowledge and expertise to performance of technical skills relevant to vascular surgery, including:

- The ability to perform the common and complex surgical procedures in vascular surgery safely and competently with the ability and confidence to deal with unexpected findings at operation.
- Knowledge in the application of, and interpretative skills in, venography, angiography and invasive imaging modalities.
- Knowledge in the application of endovascular interventions, and other treatment modalities.
- The capacity to access and apply relevant information as well as new and current therapeutic options to clinical practice.
- Medical expertise in situations other than in direct patient care. (e.g., presentations, medico-legal cases, etc.).
- Effective consultation skills in presenting well-documented assessments and recommendations in written and/or verbal form in response to a request from another health care provider.

Communicator

To provide humane, high-quality care, vascular surgeons must establish effective relationships with patients, other physicians, and other health professionals. Communication skills are essential for the functioning of a vascular surgeon, and are necessary for obtaining information from, and conveying information to patients and their families. Furthermore, these abilities are critical in eliciting patients' beliefs, concerns, and expectations about their illnesses, and for assessing key factors impacting on patients' health.

General Requirements

- Establish therapeutic relationships with patients/families.
- Obtain and synthesize relevant history from patients/families/communities.
- Listen effectively.
- Discuss appropriate information with patients/families and the health care team.

Specific Requirement

- Establish therapeutic relationships with patients that are characterized by understanding, trust, respect, empathy and confidentiality.
- Elicit and synthesize relevant information from the patient, their family, and/or community about his/her problem, while considering the influence of factors such as the patient's age, gender, ethnic, cultural and socioeconomic background, and spiritual values on that illness.
- Discuss appropriate information with the patient and his/her family, and effectively communicate this information with other health care providers that facilitates optimal health care of the patient.

Collaborator

Vascular surgeons work in partnership with others who are appropriately involved in the care of individuals or specific groups of patients. It is therefore essential for vascular surgeons to be able to collaborate effectively with patients and a multidisciplinary team of expert health professionals for provision of optimal patient care, education, and research.

General requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific requirements

- contribute effectively to other interdisciplinary team activities. This includes activities in hospitals, practice settings, and other institutions, such as committee work, research, undergraduate and postgraduate teaching, and learning.

Manager

Vascular surgeons function as managers when they make everyday practice decisions involving resources, co-workers, tasks, policies, and their personal lives. They do this in the settings of individual patient care, practice organizations, and in the broader context of the health care system. Thus, specialists require the abilities to prioritize and effectively execute tasks through teamwork with colleagues, and make systematic decisions when allocating finite health care resources. As managers, specialists take on positions of leadership within the context of professional organizations and the dynamic Canadian health care system.

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.
- Allocate finite health care resources wisely.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care, life-long learning and other activities.

Specific Requirements

- Allocate finite health care and health education resources effectively.
- Work effectively and efficiently in a health care organization, ranging from national to an individual clinical practice to organizations at the local and regional level
- Understand population-based approaches to health care services and the Canadian health care system and their implication for medical practice.
- Participate in planning, budgeting, evaluation and outcome of a patient care program.
- Effectively utilize information technology such as literature searches and vascular databases to optimize patient care, continued self-learning, and other activities
- Utilize time and resources effectively in order to balance patient care, earning needs, outside activities, and personal life.

Health Advocate

Vascular surgeons recognize the importance of advocacy activities in responding to the challenges represented by those social, environmental, and biological factors that determine the health of patients and society. They recognize advocacy as an essential and fundamental component of health promotion that occurs at the level of the individual patient, the practice population, and the broader community. Health advocacy is appropriately expressed both by the individual and collective responses of vascular surgeons in influencing public health and policy.

General Requirements

- Identify the important determinants of health affecting patients.
- Contribute effectively to improved health of patients and communities.

- Recognize and respond to those issues where advocacy is appropriate.

Specific Requirements

- Identify the risk factors and other determinants of health that affect a patient with vascular diseases, so as to be able to effectively contribute to improving individual and societal health in Canada.
- Recognize and respond to those issues, settings, circumstances, or situations in which advocacy on behalf of patients, professions, or society is appropriate.
- Be knowledgeable about the local resources that are available for patient management, support and rehabilitation to improve their physical, and emotional well being.

Scholar

Vascular surgeons engage in a lifelong pursuit of mastery of their domain of professional expertise. They recognize the need to be continually learning and model this for others. Through their scholarly activities, they contribute to the appraisal, collection, and understanding of health care knowledge, and facilitate the education of their students, patients, and others.

General Requirements

- Develop, implement and monitor a personal continuing education strategy.
- Critically appraise sources of medical information.
- Facilitate learning of patients, housestaff/students and other health professionals.
- Contribute to development of new knowledge.

Specific Requirements

- Develop, implement, and document a personal continuing education strategy.
- Apply the principles of critical appraisal to sources of medical information by incorporating a spirit of scientific enquiry and use of evidence into clinical decision making.
- Demonstrate the ability to select an appropriate question, efficiently search for and assess the quality of evidence in literature and to keep up to date with the evidence-based standard of care for the conditions most commonly seen in his/her vascular practice.

Professional

Vascular surgeons have an important societal role as professionals with a distinct body of knowledge, skills, and attitudes dedicated to improving the health and well-being of others. Vascular surgeons are committed to the highest standards of excellence in clinical care and ethical conduct, and to continually perfecting mastery of their discipline.

General Requirements

- Deliver highest quality care with integrity, honesty and compassion.
- Exhibit appropriate personal and interpersonal professional behaviours.
- Practise medicine ethically consistent with obligations of a physician.

Specific Requirements

- Deliver the highest quality care with integrity, honesty and compassion including: display attitudes commonly accepted as essential to professionalism; use appropriate strategies to maintain and advance professional competence; continually evaluate one's abilities, knowledge and skills and know one's limitations of professional competence; exercise appropriate judgement of knowing when to refer the patient.
- Exhibit appropriate personal and interpersonal professional behaviours.
- Practice medicine in an ethically responsible manner that respects the medical, legal and professional obligations of belonging to a self-regulating body.

Specialty Training Requirements

1. Royal College certification in General Surgery, Cardiac Surgery, Thoracic Surgery, or Cardiothoracic Surgery (see requirements for these specialties).
2. Two years of approved residency in a vascular surgery program or programs accredited by the Royal College, taken after completion of full residency training in the entry specialty.
3. This period must include:
 - a. fifteen months of senior residency in vascular surgery, Senior residency is defined as a period of time during which the resident is regularly entrusted with responsibility for pre-operative, operative, and post-operative care, including the most difficult problems in vascular surgery. The senior resident shall be in charge of a vascular surgery service. No other resident shall intervene between the senior resident and the attending staff surgeon.
 - b. nine months of residency in vascular surgery, that may include rotations in:
 - i. three to six months of cardiac surgery senior resident training in a cardiac surgery program approved by the Royal College
 - ii. three to six months of thoracic surgery senior resident training in a thoracic surgery program approved by the Royal College
 - iii. up to three months of residency in a non-invasive vascular laboratory
 - iv. three to six months vascular radiology

- v. up to nine months of academic enrichment that may include but is not limited to research, or a university degree, diploma or certificate program, provided that the academic enrichment project is approved by a Canadian vascular surgery residency program director before the academic enrichment is undertaken and is relevant to vascular surgery practice; The academic enrichment may be undertaken as part of another royal college approved program providing the above criteria are met.
- vi. further senior residency in clinical vascular surgery in a program approved by the Royal College for training in vascular surgery
- vii. other rotations approved in advance by the vascular surgery residency program director.

CARDIAC SURGERY ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS

Cardiac Surgery is that branch of surgery concerned with diseases of the pericardium, heart and great vessels.

GENERAL OBJECTIVES

The resident who has completed the rotation in Cardiac Surgery is expected to demonstrate knowledge in the diagnosis and management of patients with cardiovascular disease, and to demonstrate the knowledge, skills and attitudes relating to gender, culture and ethnicity pertinent to cardiac surgery.

SPECIFIC OBJECTIVES

At the completion of training, the resident will have acquired the following competencies and will function effectively as:

Medical Expert/Clinical Decision-Maker

General Requirements

- Demonstrate diagnostic and therapeutic skills relevant to clinical practice.
- Demonstrate effective consultation services with respect to patient care.
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Specific Requirements

Acquire knowledge of the principles essential to care of cardiac surgical patients including:

- Thoracic incisions: types, indications.
- Wound complications and their management including sepsis: causes, prevention, presentation, treatment.
- Anticoagulation: indications, complications, management of heparin induced thrombocytopenia.
- Cardiac medications: inotropes, antiarrhythmics, vasoactive agents; use and complications.
- Principles of diagnosis and management of the trauma patient particularly thoracic injury.
- Anaesthetic management including the use of sedatives, analgesics and local anaesthetic agents.

Acquire the following clinical skills:

- Recommend appropriate surgical approach.
- Recognize need for and appropriate use of cardiac medications.
- Manage patients with concomitant medical problems including control of diabetes and other endocrine imbalances, renal failure, respiratory insufficiency.
- Diagnose and institute appropriate management of trauma patients.

Acquire the following technical skills:

- Perform sternotomy and thoracotomy incisions: understand and perform techniques for safe redo sternotomy.

The following specific objectives describe the knowledge, clinical and technical skills required at the end of rotation.

1. **Cardiopulmonary Bypass**

Knowledge

- Use and pathophysiology of including deleterious effects.
- Design and function of components of cardiopulmonary bypass circuits including alternate types of pumps, oxygenators, and cardiopulmonary bypass devices

Clinical Skills

- Recommend appropriate method of CPB including cannulation

Technical Skills

- Institute CPB using a variety of cannulation devices and techniques.

2. **Ischemic Heart Disease**

Knowledge

- Principles of management of patients with ischemic heart disease
- Anatomy and physiology of coronary circulation and effects of obstruction.
- Pathophysiology of atherosclerosis and acute ischemic syndromes.
- Role of primary and secondary prevention; current recommendations.

Clinical Skills

- Use and interpret appropriately tests of myocardial ischemia.
- Recognize and manage acute and chronic coronary ischemia.
- Recommend appropriate timing of alternative treatment strategies including medical, interventional catheterization and surgical treatment.

Technical Skills

- Insert intraaortic balloon pumps and ventricular assist devices.

3. **Thoracic Aortic Pathology**

Knowledge

- Principles of management of patients with thoracic aortic disease
- Anatomy of aorta including its intrathoracic branches.
- Pathophysiology of thoracic and thoracoabdominal aortic aneurysms and dissections.
- Sensitivity and specificity of methods for diagnosing aortic disease including emergencies.
- Indications for medical and surgical intervention.
- Methods of surgical repair including choice of conduits, techniques for preventing brain and spinal cord damage, management of complications of aortic surgery.

Clinical Skills

- Recognize and diagnose thoracic and thoracoabdominal aortic disease including emergency presentations: use appropriate diagnostic tests.
- Recommend and institute appropriate medical therapy for thoracic and thoracoabdominal aortic pathology including emergency dissections.

4. **Pericardial Disease**

Knowledge

- Principles of management of patients with pericardial disease.
- Anatomy and physiology of the pericardium.
- Indications for medical and surgical intervention for pericardial disease.
- Surgical techniques for pericardial disease including relief of cardiac tamponade, pericardectomy.

Clinical Skills

- Use and interpret appropriately tests of pericardial disease, and recognize cardiac tamponade.
- Recommend appropriate surgical intervention for cardiac tamponade and pericardial disease.

Technical Skills

- Perform pericardial aspiration, biopsy and pericardectomy.

Communicator

General Requirements

- Establish therapeutic relationships with patients and families.
- Obtain and synthesize relevant history from patients and families, and their communities.
- Listen effectively.
- Discuss appropriate information with patients and families, and the health care team.

Specific Requirements

In order to achieve these objectives the resident must develop the ability to:

- Obtain and synthesize relevant history from patients and family.
- Inform patients and families about their condition at an appropriate and understandable level.
- Be sensitive and respond appropriately to issues of gender, culture and ethnicity in dealing with patients and families.
- Write a preliminary report on operations on chart.
- Dictate concise, clear description of operation.
- Write clear consultation note/discharge summary/clinic note.
- Prepare and present ward and intensive care unit (ICU) rounds in an organized manner.
- Participate actively in scheduled rounds.

Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

In order to achieve these objectives the resident must develop the ability to:

- Work with ward, ICU, operating room and expanded role nurses to manage patients appropriately.

- Identify social, rehabilitative, dietetic concerns with patients and consult appropriate allied health professionals.
- Consult and work with medical specialists appropriately.
- Assist allied health professionals through active participation in their training and educational rounds.

Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care, life-long learning and other activities.

Specific Requirements

In order to achieve these objectives the resident must develop the ability to:

- Understand the importance of and mechanisms to safely utilize resources in a cost-effective manner to benefit all patients.
- Recommend practices to effectively utilize resources including undertaking studies to assess effectiveness of standard care procedures.

Health Advocate

General Requirements

- Identify the important determinants of health affecting patients.
- Contribute effectively to improved health of patients and communities.
- Recognize and respond to those issues where advocacy is appropriate.

Specific Requirements

In order to achieve these objectives the resident must understand the:

- Principles and data supporting primary and secondary prevention of coronary artery disease.
- Triage system for the surgical wait list; its rationale, and how patients are added or upgraded.
- Value of outcomes research for surgical procedures.

Scholar

General Requirements

- Critically appraise sources of medical information.
- Facilitate learning of patients, housestaff/students and other health professionals.

Specific Requirements

In order to achieve these objectives the resident must:

- Contribute knowledge learned to service rounds.
- Understand principles and practice of basic and applied research including the scientific method, design and conduct of clinical trials, critical appraisal of literature and the use of statistics.

- Read around clinical cases.
- Participate actively in scheduled morbidity and mortality conferences and journal club.

Professional

General Requirements

- Deliver highest quality care ethically
- Exhibit appropriate personal and interpersonal professional behaviours.

Specific Requirements

In order to achieve these objectives the resident must develop the ability to:

- Deliver care with integrity, honesty and compassion.
- Understand the professional, legal, and ethical codes to which physicians are bound.

RADIOLOGY ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS

Radiology is a branch of medical practice concerned with the use of imaging techniques in the study, diagnosis and treatment of disease.

GENERAL OBJECTIVES

The vascular resident will familiarize with contrast and noncontrast enhanced imaging technique in vascular pathology, and with the common endovascular interventional procedures

SPECIFIC OBJECTIVES

Medical Expert/Clinical Decision-Maker

General Requirements

- Demonstrate diagnostic and therapeutic skills for ethical and effective care of vascular patients.

Specific Requirements

- Understand the nature of formation of all types of radiological images, including physical and technical aspects, patient positioning, contrast media.
- Knowledge of the theoretical, and practical aspects of radiation protection, including other imaging techniques and their possible harmful effects.
- Knowledge of appropriate application of imaging to patients, and of complications such as contrast media reactions.
- Show competence in manual and procedural skills and in diagnostic and interpretive skills.

The resident is expected to be able to perform and understand

- Plain films
- Iodinated contrast angiography, CO₂ angiography, and magnetic resonance angiography
- Therapeutic angiographic interventions
- Arterial thrombolysis, venous thrombolysis
- Doppler Ultrasound and Duplex Imaging
- Computerized tomography
- Venography
- Nuclear Medicine
- Duplex imaging

The resident will acquire technical skill in

- diagnostic selective arteriography
- therapeutic angioplasty techniques of the arterial and venous systems
- stent placement, in the arterial and venous systems
- experience in arterial thrombolysis.

Communicator

General Requirements

- Establish appropriate therapeutic relationships with patients/families.
- Listen effectively.
- Obtain the appropriate information during consultation with referring physicians in order to be able to make recommendations regarding the most appropriate testing and/or management of patients.
- Discuss appropriate information with patients/families and the health care team.

Specific Requirements

- Understand the importance of communication with referring physicians, including an understanding of when the results of an investigation or procedure should be urgently communicated.
- Communicate effectively with patients and their families

Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

- Have the ability to function as a member of a multi-disciplinary health care team in the optimal practice of radiology.

Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and other activities.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care.

Specific Requirements

- Understand issues of quality assurance including an understanding of safety issues and economic considerations.
- Be competent in computer science as it pertains to the practice of radiology.

Health Advocate

General Requirements

- Identify the important determinants of health affecting patients.
- Contribute effectively to improve the health of patients and communities.
- Recognize and respond to those issues where advocacy is appropriate.

Specific Requirements

- Understand and communicate the benefits and risks of radiological investigation and treatment including population screening.
- Recognize when radiological investigation or treatment would be detrimental to the health of a patient.
- Educate and advise on the use and misuse of radiological imaging.

Scholar

General Requirements

- Critically appraise sources of medical information.
- Facilitate learning of patients, housestaff/students and other health professionals.

Specific Requirements

- Competence in evaluation of the medical literature.

Professional

General Requirements

- Deliver care ethically and with integrity, honesty and compassion.
- Exhibit appropriate personal and interpersonal professional behaviours.

Specific Requirements

- Be able to accurately assess one's own performance, strengths and weaknesses.
- Understand the ethical and medical-legal requirements of radiologists.

ENDOASCULAR ROTATION

GENERAL OBJECTIVES

The vascular resident will familiarize with angiography and endovascular interventions including abdominal and thoracic endovascular aneurysm repair

SPECIFIC OBJECTIVES

Medical Expert/Clinical Decision-Maker

General Requirements

- Demonstrate diagnostic and therapeutic skills for ethical and effective care of vascular patients.

Specific Requirements

- Knowledge of the theoretical, and practical aspects of radiation protection, including other imaging techniques and their possible harmful effects.
- Radiation principles
 - 2.1.1 Kilovoltage (kV)
 - 2.1.2 Milliampere and milliamper/sec
 - 2.1.3 RADS, REM, scattered radiation
 - 2.2.1.1 X-rays tubes
 - 2.2.1.2 Image intensifier
 - 2.2.1.3 X-ray generators
 - 2.2.1.4 Gantry
 - 2.2.1.5 Factors affecting image quality
 - 2.2.1.6 DSA - size and number of pixels
 - 2.2.1.7 Road maps
 - 2.2.2 Fixed unit versus mobile units
 - 2.2.3 Power injectors
 - 2.2.3.1 Volume
 - 2.2.3.2 Injection rate
 - 2.2.3.3 Maximum PSI
 - 2.2.3.4 Pressure rate rise
 - 2.2.3.5 Inject delay
 - 2.2.3.6 X-ray delay
- Knowledge of appropriate application of imaging to patients, and of complications such as contrast media reactions.
 - 1.2.1 Iodinated contrast media
 - 1.2.1.1 Renal, cardiac, hematological, neurological, and idiosyncratic effects
 - 1.2.1.2 Prophylaxis of allergic reactions, types of allergic reactions and treatment
 - 1.2.2 Non-iodinated contrasts

- 1.2.2.1 Carbon dioxide
- 1.2.2.2 Gadolinium
- Drugs used in endovascular interventions
 - 1.3.1 Local anaesthetics
 - 1.3.2 Analgesics
 - 1.3.3 Sedatives
 - 1.3.4 Vasodilators (tolazoline, papaverine, nitroglycerine)
 - 1.3.5 Antihypertensive (nifedipine, labetalol)
 - 1.3.6 Anticoagulants (heparine, warfarine) and reversal
 - 1.3.7 Thrombolytic therapy
 - 1.3.7.1 Streptokinase, Urokinas, tPA.
 - 1.3.7.2 Intraoperative thrombolytic therapy
 - 1.3.8 Antibiotics
- Catheters and basic properties
 - 3.1.1 Torque
 - 3.1.2 Flow rate
 - 3.2 Non selective catheters
 - 3.2.1 Pig tails
 - 3.2.2 Straight catheters
 - 3.3 Selective catheters
 - 3.3.1 End-holes catheters
 - 3.3.2 End- and side-holes catheters
 - 3.3.3 Most commonly used selective catheters
 - 3.3.3.1 Simple curve catheters (Berenstein, Kumpe, Head hunter)
 - 3.3.3.2 Complex curves catheters (Cobra, side winder, SOS omni, RDC)
 - 3.4 Guide catheters
 - 3.5 Sheaths
 - 3.6 Guide wires
 - 3.6.1 Basic properties
 - 3.6.1.1 Non-steerable (J-wire, LQST, Rosen, Amplatz)
 - 3.6.1.2 Steerable (terumo, road-runner, platinum plus)
 - 3.6.2 Length
 - 3.6.3 Stiffness
 - 3.6.4 Dimeter.
- Show competence in manual and procedural skills and in diagnostic and interpretive skills.

The resident is expected to be able to perform and understand

- Iodinated contrast angiography, CO2 angiography,
- Therapeutic angiographic interventions
- Arterial thrombolysis, venous thrombolysis
- Doppler Ultrasound and Duplex Imaging
- Computerized tomography

- Venography

The resident will acquire technical skill in

- diagnostic selective arteriography
- therapeutic angioplasty techniques of the arterial and venous systems
- stent placement, in the arterial and venous systems
- experience in arterial thrombolysis.

Communicator

General Requirements

- Establish appropriate therapeutic relationships with patients/families.
- Listen effectively.
- Obtain the appropriate information during consultation with referring physicians in order to be able to make recommendations regarding the most appropriate testing and/or management of patients.
- Discuss appropriate information with patients/families and the health care team.

Specific Requirements

- Understand the importance of communication with referring physicians, including an understanding of when the results of an investigation or procedure should be urgently communicated.
- Communicate effectively with patients and their families

Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

- Have the ability to function as a member of a multi-disciplinary health care team in the optimal practice of radiology.

Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and other activities.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care.

Specific Requirements

- Understand issues of quality assurance including an understanding of safety issues and economic considerations.
- Be competent in computer science as it pertains to the practice of radiology.

Health Advocate

General Requirements

- Identify the important determinants of health affecting patients.
- Contribute effectively to improve the health of patients and communities.
- Recognize and respond to those issues where advocacy is appropriate.

Specific Requirements

- Understand and communicate the benefits and risks of radiological investigation and treatment including population screening.
- Recognize when radiological investigation or treatment would be detrimental to the health of a patient.
- Educate and advise on the use and misuse of radiological imaging.

Scholar

General Requirements

- Critically appraise sources of medical information.
- Facilitate learning of patients, housestaff/students and other health professionals.

Specific Requirements

- Competence in evaluation of the medical literature.

Professional

General Requirements

- Deliver care ethically and with integrity, honesty and compassion.
- Exhibit appropriate personal and interpersonal professional behaviours.

Specific Requirements

- Be able to accurately assess one's own performance, strengths and weaknesses.
- Understand the ethical and medical-legal requirements of radiologists.

PLASTIC SURGERY ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS

GENERAL OBJECTIVES

The resident in vascular surgery will be trained in the principles and practice of plastic surgery and gain experience and proficiency in the care of surgical emergencies, including trauma, the management of problems in pre- and post-operative care, shock, fluid balance and nutritional support, system support, and surgical intensive care.

SPECIFIC OBJECTIVES

At the completion of training, the resident will have acquired the following competencies and will function effectively as:

Medical Expert/Clinical Decision-Maker

General Requirements

On completion of the training program, each resident will demonstrate, knowledge of:

- wound healing, normal and abnormal;
- sepsis as it especially applies to operative care;
- the pharmacology, including the principles of metabolism, action and toxicity, of drugs commonly used in the specialty;

Specific Requirements

Acquire knowledge of the principles essential to care of plastic surgical patients including:

- the investigation, diagnosis and management design, for both acute and long term wound problems .
- wound healing
- competence in types of skin covering techniques,
- treatment of soft tissue injuries,
- reconstructive surgery on the chest, abdomen, and extremities,

Communicator

General Requirements

- The ability to communicate effectively with the patient and the family
- A compassionate interest and overall understanding of the patient,
- Listen effectively.

Specific Requirements

- Understand the importance of communication with patients and their families

Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

- Have the ability to function as a member of a multi-disciplinary health care team in the optimal practice of plastic surgery.

Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and other activities.
- Work effectively and efficiently in a health care organization.

Specific Requirements

In order to achieve these objectives the resident must develop the ability to:

- Understand the importance of and mechanisms to safely utilize resources in a cost-effective manner to benefit all patients.
- Recommend practices to effectively utilize resources including undertaking studies to assess effectiveness of standard care procedures.

Health Advocate

General Requirements

- Identify the important determinants of health affecting patients.
- Contribute effectively to improved health of patients

Specific Requirements

In order to achieve these objectives the resident must understand the:

- Principles and data supporting patient treatment.
- Triage system
- Value of outcomes research for surgical procedures.

Scholar

General Requirements

- Critically appraise sources of medical information.
- Facilitate learning of patients, housestaff/students and other health professionals.

Specific Requirements

In order to achieve these objectives the resident must:

- Contribute knowledge learned to service rounds.

- Understand principles and practice of basic and applied research including the scientific method, design and conduct of clinical trials, critical appraisal of literature and the use of statistics.
- Read around clinical cases.
- Participate actively in scheduled morbidity and mortality conferences and journal club.

Professional

General Requirements

- Deliver highest quality care ethically
- Exhibit appropriate personal and interpersonal professional behaviours.

Specific Requirements

In order to achieve these objectives the resident must develop the ability to:

- Deliver care with integrity, honesty and compassion.
- Understand the professional, legal, and ethical codes to which physicians are bound.

MICROSURGERY ELECTIVE ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS

DEFINITION

Microsurgery is any technical surgical manoeuvre done under magnification. Thus, unlike terms, which imply a specific field of surgical endeavour, microsurgery can be applied to any surgical discipline. In vascular surgery a number of potential application exist both in the research and clinical arena. The purpose of this rotation is to provide basic and advance knowledge those residents interested in proficiency in microsurgical techniques.

GENERAL OBJECTIVES

The resident in vascular surgery will be trained in the principles and of microsurgical techniques as an integral step toward laboratory and clinical microsurgery.

SPECIFIC OBJECTIVE

At the completion of training, the resident will have acquired the following competencies and will function effectively as:

Medical Expert/Clinical Decision-Maker

General Requirements

On completion of the training program, each resident will demonstrate, knowledge of:

- Operating microscope
- Instrument and their care
- Suturing skills
- Role of the assistant

Specific Requirements

Acquire knowledge of the principles essential to microsurgery:

- Types of operating microscope
- Operation of surgical microscopes
- Adjustment of magnifications and focusing
- Types of microvascular instruments and their care during and after surgery
- Hand eye co-ordination
- Suturing techniques
- Types of suturing materials
- Vascular histology
- Blood coagulation and prevention of thrombotic occlusion of vascular anastomosis
- Microvascular artery and vein repair or anastomosis
- Epineural nerve repair

- Individual fascicular repair

Communicator

General Requirements

- The ability to communicate effectively with colleagues and assistant
- An interest and overall understanding of the team participating in the microvascular surgery
- Listen effectively.

Specific Requirements

- Understand the importance of communication with colleagues and staff

Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

- Have the ability to function as a member of a multi-disciplinary health care team

Manager

General Requirements

- Utilize resources and instruments

Specific Requirements

In order to achieve these objectives the resident must develop the ability to:

- Understand the importance of and mechanisms to safely utilize resources and instruments needed for microsurgery

Health Advocate

General Requirements

- Understand how microsurgical technique can be used to improve the health of patients.

Specific Requirements

- In order to achieve these objectives the resident must understand the data supporting patient treatment.

Scholar

General Requirements

- Critically appraise sources of medical information.
- Facilitate learning of patients, housestaff/students and other health professionals.

Specific Requirements

In order to achieve these objectives the resident must:

- Contribute knowledge learned to service rounds and discuss the learned microvascular techniques to his/her fellows and colleagues.
- Read around clinical cases and experimental applications of microsurgical techniques..

Professional

General Requirements

- Exhibit appropriate personal and interpersonal professional behaviours.

Specific Requirements

- In order to achieve these objectives the resident must understand the professional, legal, and ethical codes to which physicians are bound.

ORTHOPAEDIC AND REHABILITATION ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS

DEFINITION

This rotation will provide the resident with the knowledge for diagnosis, management and rehabilitation of patients with peripheral vascular disease who require extremities amputations.

GENERAL OBJECTIVES

On completion of the rotation, the vascular resident will demonstrate knowledge, skills and attitudes relating to patients requiring orthopaedic surgery in general and amputation of extremities in particular. In addition the resident will acquire experience and knowledge of basic prosthetics and orthotics.

SPECIFIC OBJECTIVES

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

Medical Expert/Clinical Decision-Maker

General Requirements

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.
- Access and apply relevant information to clinical practice.
- Demonstrate effective consultation services with respect to patient care, education and medical-legal opinions.

Specific Requirements

- Demonstrate knowledge of the anatomy, physiology, kinesiology and ergonomics of the limbs
- pertinent biomechanical principles of amputations
- diagnostic tests to assess amputation level
- immediate postoperative and long term care of amputees
- Demonstrate knowledge of orthoses and prostheses, exercise programs, physical modalities, rehabilitation therapies and drugs.
- Demonstrate knowledge of surgical options that allow appropriate operative selection

2. Communicator

General Requirements

- Discuss appropriate information with patients/families and the health care team and establish therapeutic relationships with patients/families.
- Listen effectively.

Specific Requirements

- Recognize that being a good communicator is an essential function of a physician

- Establish relationships with the patient that are characterized by understanding, trust, respect, empathy and confidentiality.
- Recognize the emotional stress for patients and families faced with amputations
- As a prelude to surgical intervention use above skills to obtain informed consent; appreciate alternative means of achieving consent if the patient is incompetent to provide consent, be it on the grounds of age or mental status, or other disqualifier.
- Maintain clear, accurate and appropriate written records.

Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

- Identify and describe the role, expertise and limitations of all members of an interdisciplinary team
- Develop a care plan for a mutual-interest patient, that includes investigation, treatment and continuing care, whether preoperatively or postoperatively, as well as in both hospital and community settings.

Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.

Specific Requirements

- Have basic knowledge of how to function effectively in health care organizations
- Make clinical decisions and judgments based on sound evidence for the benefit of individual patients and the population served.

Health Advocate

General Requirements

- Identify the important determinants of health affecting patients.
- Contribute effectively to improved health of patients and communities.

Specific Requirements

- Demonstrate knowledge of determinants of health by identifying the most important determinants of health (i.e., poverty, unemployment, early childhood education, social support systems).
- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with patients with disabilities.
- Promote a heightened awareness of the challenges and abilities of persons with amputations.

Scholar

General Requirements

- Develop, implement and monitor a personal continuing education strategy.
- Critically appraise sources of medical information.

Specific Requirements

- conduct an appropriate literature search based on the clinical question;
- assimilate and appraise the literature;
- develop a system to store and retrieve relevant literature;
- consult others (physicians and other health professionals) in a collegial manner.

Professional

General Requirements

- Deliver highest quality care with integrity, honesty and compassion.

Specific Requirements

- Display attitudes commonly accepted as essential to professionalism.
- Use appropriate strategies to maintain and advance professional competence.
- Know and understand the professional, legal and ethical codes to which physicians are bound.
- Recognize, analyze and know how to deal with unprofessional behaviors.

ROTATION IN RENAL TRANSPLANTATION, ANGIO-ACCESS, AND RENAL REVASCULARIZATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS

GENERAL OBJECTIVES

These related disciplines are taken together as they form a convenient elective in the renal transplant program, which is situated at St. Joseph's Hospital. Residents electing to do this as part of their program will have experience in transplantation techniques, plus angio access and the long-term treatment of dialysis-shunts etc. In addition, they will have further experience with aortic and renal revascularization.

SPECIFIC OBJECTIVES

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

Medical Expert/Clinical Decision-Maker

General Requirements

- demonstrate diagnostic and therapeutic skills for ethical and effective patient care
- demonstrate access and apply relevant information to clinical practice
- demonstrate effective consultation services with respect to patient care, education and legal opinions

Specific Requirements

- Demonstrate knowledge of physiology, pathophysiology, and pharmacology of the kidney and urinary tract
- Acute renal failure
- Adjuncts to reduce ischemic injury to the kidneys
- Indications and techniques of renal transplantation
- Indication, techniques and maintenance of haemodialysis access for dialysis
- Complications of haemodialysis access for dialysis
- Indications and techniques for revascularization of renal arteries
- Ex-vivo renal arteries reconstructions

2. Communicator

General Requirements

- Discuss appropriate information with patients/families and the health care team and establish therapeutic relationships with patients/families.
- Listen effectively.

Specific Requirements

- Recognize that being a good communicator is an essential function of a physician

- Establish relationships with the patient that are characterized by understanding, trust, respect, empathy and confidentiality.
- Recognize the emotional stress for patients and families faced with renal failure or disease
- As a prelude to surgical intervention use above skills to obtain informed consent; appreciate alternative means of achieving consent if the patient is incompetent to provide consent, be it on the grounds of age or mental status, or other disqualifier.
- Maintain clear, accurate and appropriate written records.

3. Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

- Identify and describe the role, expertise and limitations of all members of an interdisciplinary team
- Develop a care plan for a mutual-interest patient, that includes investigation, treatment and continuing care, whether preoperatively or postoperatively, as well as in both hospital and community settings.

4. Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.

Specific Requirements

- Have basic knowledge of how to function effectively in health care organizations
- Make clinical decisions and judgments based on sound evidence for the benefit of individual patients and the population served.

5. Health Advocate

General Requirements

- identify the important determinants of health affecting patients
- contribute effectively to improved health of patients and communities
- recognize and respond to those issues where advocacy is appropriate

Specific Requirements

- Demonstrate knowledge of determinants of health by identifying the most important determinants of health (i.e., poverty, unemployment, early childhood education, social support systems).
- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with patients with disabilities.
- Promote a heightened awareness of the challenges and abilities of persons with amputations.

6. Scholar

General Requirements

- develop, implement and monitor a personal continuing education strategy
- critically appraise sources of medical information
- facilitate learning of patients, housestaff/students and other health professionals
- contribute to development of new knowledge

Specific Requirements

- conduct an appropriate literature search based on the clinical question;
- assimilate and appraise the literature;
- develop a system to store and retrieve relevant literature;
- consult others (physicians and other health professionals) in a collegial manner.

7. Professional

General Requirements

- Deliver highest quality care with integrity, honesty and compassion.

Specific Requirements

- deliver highest quality care with integrity, honesty and compassion
- exhibit appropriate personal and interpersonal professional behaviours
- practise medicine ethically consistent with obligations of a physician

INTENSIVE CARE ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS

GENERAL OBJECTIVES

Knowledge of care of patients in intensive care settings is a necessary part of the training programme, and residents will take part in the care of vascular patients in intensive care unit throughout their clinical training. However, if a resident wishes to increase her/his skills in this aspect of patient management or if the Education Committee deems it necessary for a particular resident, then an elective period of three months of training can be done in Intensive Care Unit.

SPECIFIC OBJECTIVES

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

1. Medical Expert/Clinical Decision-Maker

General Requirements

- demonstrate diagnostic and therapeutic skills for ethical and effective patient care
- demonstrate access and apply relevant information to clinical practice
- demonstrate effective consultation services with respect to patient care, education and legal opinions

Specific Requirements

A. Knowledge Base

Each trainee rotating through the Intensive Care Unit should have a fundamental understanding of the diagnosis, incidence, aetiology, microbiology, pathophysiology, signs, symptoms, treatments, prognosis and complications of the following:

- Cardiac arrest
- Respiratory failure
- Shock
- Coma and other neurological problems
- Trauma
- Burns
- Cardiac crisis - i.e. arrhythmias, diminished organ perfusion, pulmonary edema
- Myocardial infarction and hypertension.
- Renal preservation and support
- The acute abdomen, gastrointestinal haemorrhage, hollow viscous dysfunction and
- Hepatobiliary disease
- Sepsis
- Intoxications
- Acid base disorders

- Fluid and electrolyte disorders
- Coagulation disturbances and blood replacement therapy
- Nutrition – enteral and parenteral
- Endocrine disturbances in the critically ill related to water and/or glucose
- Metabolism, adrenal, parathyroid and/or thyroid and pituitary function
- Hypo – and hyperthermia syndromes
- Pain, anxiety and sleep
- Perioperative risk problems
- Vascular crises
- Drugs – general pharmacology of drugs commonly used in the critically ill
- Transportation of the critically ill
- Development of an appreciation for future interaction between the Intensive Care Unit, the residents themselves and their respective discipline
- To understand the particular problems encountered in the post operative vascular patient and to demonstrate the ability to deal with them
- Ethical, legal and philosophical considerations
- Demonstrable skill in dealing with the psychosocial and ethical issues related to patients, family and health care staff in intensive care unit
- Demonstrable skill in dealing with the ethical issues of death and grieving

2. Communicator

General Requirements

- Discuss appropriate information with patients/families and the health care team and establish therapeutic relationships with patients/families.
- Listen effectively.

Specific Requirements

- Recognize that being a good communicator is an essential function of a physician
- Establish relationships with patients and families that are characterized by understanding, trust, respect, empathy and confidentiality.
- Recognize the emotional stress for patients and families in intensive care setting
- Understand issues related to obtain informed consent; appreciate alternative means of achieving consent if the patient is incompetent to provide consent, be it on the grounds of age or mental status, or other disqualifier.
- Maintain clear, accurate and appropriate written records.

3. Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

- Identify and describe the role, expertise and limitations of all members of an interdisciplinary team
- Develop a care plan for a mutual-interest patient, that includes investigation, treatment and continuing care, whether preoperatively or postoperatively, as well as in both hospital and community settings.

4. Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.

Specific Requirements

- Have basic knowledge of how to function effectively in health care organizations
- Make clinical decisions and judgments based on sound evidence for the benefit of individual patients and the population served.

5. Health Advocate

General Requirements

- identify the important determinants of health affecting patients
- contribute effectively to improved health of patients and communities
- recognize and respond to those issues where advocacy is appropriate

Specific Requirements

- Demonstrate knowledge of determinants of health by identifying the most important determinants of health (i.e., poverty, unemployment, early childhood education, social support systems).
- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with patients with disabilities.
- Promote a heightened awareness of the challenges and abilities of persons with amputations.

6. Scholar

General Requirements

- develop, implement and monitor a personal continuing education strategy
- critically appraise sources of medical information
- facilitate learning of patients, house staff/students and other health professionals
- contribute to development of new knowledge

Specific Requirements

- conduct an appropriate literature search based on the clinical question;
- assimilate and appraise the literature;
- develop a system to store and retrieve relevant literature;
- consult others (physicians and other health professionals) in a collegial manner.

7. Professional

General Requirements

- Deliver highest quality care with integrity, honesty and compassion.

Specific Requirements

- deliver highest quality care with integrity, honesty and compassion
- exhibit appropriate personal and interpersonal professional behaviours
- practise medicine ethically consistent with obligations of a physician

THROMBOEMBOLISM PROGRAMME ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS

GENERAL OBJECTIVES

Knowledge of haemostasis, coagulation disorders, pathologic and iatrogenic fibrinolysis, perioperative coagulation abnormalities and their correction are part of the core programme of the residency in vascular surgery. However, if a resident wishes to increase her/his skills in this aspect of patient management or if the Education Committee deems it necessary for a particular resident, then an elective period of three months of training can be done in the thromboembolism programme.

SPECIFIC OBJECTIVES

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

1. Medical Expert/Clinical Decision-Maker

General Requirements

- demonstrate diagnostic and therapeutic skills for ethical and effective patient care with congenital or acquired coagulation disorders
- demonstrate access and apply relevant information to clinical practice
- demonstrate effective consultation services with respect to patient care, education and legal opinions

Specific Requirements

Acquire knowledge of

- the coagulation and fibrinolytic pathway, their activation, amplification and inhibition
- the role of adhesive molecules, platelets, endothelial cells and the vessel wall, and the mechanism of fibrinolysis.
- The pathophysiology of haemostats during surgery.
- tests of haemostasis, including coagulation factor assays,
- The investigation and treatment of acquired disorders of coagulation.
- The detection and treatment of venous thrombosis and pulmonary embolism.
- The use of anticoagulants, antiplatelet drugs, and fibrinolytic agents in venous and arterial thrombosis.

2. Communicator

General Requirements

- Discuss appropriate information with patients/families and the health care team and establish therapeutic relationships with patients/families.
- Listen effectively.

Specific Requirements

- Recognize that being a good communicator is an essential function of a physician

- Establish relationships with patients and families that are characterized by understanding, trust, respect, empathy and confidentiality.
- Maintain clear, accurate and appropriate written records.

3. Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

- Identify and describe the role, expertise and limitations of all members of an interdisciplinary team
- Develop a care plan for a mutual-interest patient requiring anticoagulation, both hospital and community settings.

4. Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.

Specific Requirements

- Have basic knowledge of how to function effectively in health care organizations
- Make clinical decisions and judgments based on sound evidence for the benefit of individual patients and the population served.

5. Health Advocate

General Requirements

- identify the important determinants of health affecting patients
- contribute effectively to improved health of patients and communities
- recognize and respond to those issues where advocacy is appropriate

Specific Requirements

- Demonstrate knowledge of determinants of health by identifying the most important determinants of health (i.e., poverty, unemployment, early childhood education, social support systems).
- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with patients with disabilities.
- Promote the understanding and use of antiplatelet therapy and anticoagulants as a primary and secondary prophylaxis of atherosclerotic occlusive disease.

6. Scholar

General Requirements

- develop, implement and monitor a personal continuing education strategy
- critically appraise sources of medical information
- facilitate learning of patients, house staff/students and other health professionals
- contribute to development of new knowledge

Specific Requirements

- conduct an appropriate literature search based on the clinical question;
- assimilate and appraise the literature;
- develop a system to store and retrieve relevant literature;
- consult others (physicians and other health professionals) in a collegial manner.

7. Professional

General Requirements

- Deliver highest quality care with integrity, honesty and compassion.

Specific Requirements

- deliver highest quality care with integrity, honesty and compassion
- exhibit appropriate personal and interpersonal professional behaviours
- practise medicine ethically consistent with obligations of a physician

PACEMAKERS AND INTERNAL DEFIBRILLATORS PROGRAMME ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS

GENERAL OBJECTIVES

- Provide excellent, comprehensive, and evidence based diagnosis and management for patients with cardiovascular disorders
- Understand and treat common arrhythmias with pharmacologic interventions or pacemakers devices

SPECIFIC OBJECTIVES

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

1. Medical Expert/Clinical Decision-Maker

General Requirements

- demonstrate diagnostic and therapeutic skills for ethical and effective patient care with congenital or acquired coagulation disorders
- demonstrate access and apply relevant information to clinical practice
- demonstrate effective consultation services with respect to patient care, education and legal opinions

Specific Requirements

Basic knowledge

- Normal cellular electrophysiology
- Normal sinoauricular (SA) node, auriculoventricular (AV) node, and conducting system function
- Mechanisms of arrhythmogenesis
- Mechanisms of conduction abnormalities
- Pharmacology of antiarrhythmic agents
- Temporary and permanent cardiac pacing: techniques, indications, and follow-up
- Antitachycardia devices
-

Technical skills

- Operative skills to be proficient unsupervised:
 - Single chamber pacemaker insertion
 - Dual chamber pacemaker insertion
 - Unipolar and bipolar lead insertion
- Operative skills to be familiar with:
 - I.C.D. implantation
 - Epicardial leads
 - Lead removal
- Expected knowledge:
 - Indications for both single and dual chamber pacemaker insertion

- The influence of electromagnetic forces on pacemaker function
- The use of dual sensors, mode switching and arterial pacing in pacemaker technology.
- Pacemaker follow up methodology

2. Communicator

General Requirements

- Discuss appropriate information with patients/families and the health care team
- Listen effectively.

Specific Requirements

- Recognize that being a good communicator is an essential function of a physician
- Establish relationships with patients and families that are characterized by understanding, trust, respect, empathy and confidentiality.
- Maintain clear, accurate and appropriate written records.

3. Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

- Identify and describe the role, expertise and limitations of all members of an interdisciplinary team
- Develop a care plan for a patient requiring a pacemaker, both in hospital and in community settings.

4. Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.

Specific Requirements

- Have basic knowledge of how to function effectively in health care organizations
- Make clinical decisions and judgments based on sound evidence for the benefit of individual patients and the population served.

5. Health Advocate

General Requirements

- identify the important determinants of health affecting patients
- contribute effectively to improved health of patients and communities
- recognize and respond to those issues where advocacy is appropriate

Specific Requirements

- Demonstrate knowledge of determinants of health by identifying the most important determinants of health (i.e., poverty, unemployment, early childhood education, social support systems).

- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with patients with cardiac disease and arrhythmias.
- Promote the understanding and use of antiplatelet therapy and anticoagulants as a primary and secondary prophylaxis of atherosclerotic occlusive disease.

6. Scholar

General Requirements

- develop, implement and monitor a personal continuing education strategy
- critically appraise sources of medical information
- facilitate learning of patients, house staff/students and other health professionals
- contribute to development of new knowledge

Specific Requirements

- conduct an appropriate literature search based on the clinical question;
- assimilate and appraise the literature;
- develop a system to store and retrieve relevant literature;
- consult others (physicians and other health professionals) in a collegial manner.

7. Professional

General Requirements

- Deliver highest quality care with integrity, honesty and compassion.

Specific Requirements

- deliver highest quality care with integrity, honesty and compassion
- exhibit appropriate personal and interpersonal professional behaviours
- practise medicine ethically consistent with obligations of a physician

ENDOASCULAR SURGERY ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS

DEFINITION

Endoluminal graft repair of aortic aneurysms has been in trial for the last ten years and endovascular surgery has developed to represent an important component of the armamentarium of vascular surgeons. Residents in vascular surgery are strongly advised to undertake a rotation of at least three months in a division with a large volume of endovascular interventions, in order to acquire in a relatively short time the skills necessary to offer a broad spectrum of interventions to their vascular patients including endovascular procedures. Since the case volume of endovascular interventions is limited in our institution, an extramural experience is arranged.

GENERAL OBJECTIVES

- Provide excellent, comprehensive, and evidence based advice regarding endovascular treatment
- Understand and treat common vascular disease which are amenable to or are better treated with endovascular interventions compared with traditional open techniques
-

SPECIFIC OBJECTIVES

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

Medical Expert/Clinical Decision-Maker

General Requirements

- demonstrate diagnostic and therapeutic skills for ethical and effective patient care
- demonstrate access and apply relevant information to clinical practice
- demonstrate effective consultation services with respect to patient care, education and legal opinions

Specific Requirements

Basic knowledge

- Radiation principle and safety
- Contrast agents
- Needles, introducers, guidewires, catheters, balloon catheters
- Percutaneous transluminal angioplasty
- Intraoperative balloon angioplasty
- Stents
- Endovascular grafts: principles, indications, contraindications
- Diagnostic interventions required for aneurysm repair
- Technical aspect and pitfalls of endovascular graft aneurysm repair
- Postoperative management and long term follow up of patients undergoing endovascular graft aneurysm repair

The resident should be better able to:

- Identify major elements in the diagnosis and management of peripheral vascular disease.
- Identify causes and interventional solutions to various complications of balloon angioplasty, stenting and stent-grafting.
- Identify the patient selection criteria for stent-grafting.
- Select angioplasty and endovascular devices according to recognized guidelines.
- Compare the economic advantages and disadvantages involved in endovascular modalities.
- Appreciate the integration of new technologies into existing practice.

Communicator

General Requirements

- Discuss appropriate information with patients/families and the health care team
- Listen effectively.

Specific Requirements

- Recognize that being a good communicator is an essential function of a physician
- Establish relationships with patients and families that are characterized by understanding, trust, respect, empathy and confidentiality.
- Maintain clear, accurate and appropriate written records.

Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

- Identify and describe the role, expertise and limitations of all members of an interdisciplinary team
- Develop a care plan for a patient requiring a pacemaker, both in hospital and in community settings.

Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.

Specific Requirements

- Have basic knowledge of how to function effectively in health care organizations
- Make clinical decisions and judgements based on sound evidence for the benefit of individual patients and the population served.

Health Advocate

General Requirements

- identify the important determinants of health affecting patients
- contribute effectively to improved health of patients and communities
- recognize and respond to those issues where advocacy is appropriate

Specific Requirements

- Demonstrate knowledge of determinants of health by identifying the most important determinants of health (i.e., poverty, unemployment, early childhood education, social support systems).
- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with patients with cardiac disease and arrhythmias.
- Promote the understanding and use of antiplatelet therapy and anticoagulants as a primary and secondary prophylaxis of atherosclerotic occlusive disease.

Scholar

General Requirements

- develop, implement and monitor a personal continuing education strategy
- critically appraise sources of medical information
- facilitate learning of patients, house staff/students and other health professionals
- contribute to development of new knowledge

Specific Requirements

- conduct an appropriate literature search based on the clinical question;
- assimilate and appraise the literature;
- develop a system to store and retrieve relevant literature;
- consult others (physicians and other health professionals) in a collegial manner.

Professional

General Requirements

- Deliver highest quality care with integrity, honesty and compassion.

Specific Requirements

- deliver highest quality care with integrity, honesty and compassion
- exhibit appropriate personal and interpersonal professional behaviours
- practise medicine ethically consistent with obligations of a physician

RESEARCH ELECTIVE: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS

GENERAL OBJECTIVES

The objectives of this elective are to provide the resident with the basic tools to be able to interpret the clinical literature as it pertains to vascular surgery and to understand the methodology of clinical research and study design.

SPECIFIC OBJECTIVES

Medical Expert/Clinical Decision-Maker

General Requirements

- demonstrate ability to search the medical literature
- access and evaluate the information published, and understand the relevance to clinical practice
- demonstrate understanding of the issues related to research methodology and its impact of the validity of results
-

Specific Requirements

At the end of the elective the resident

- will have designed a research project

At the end of the elective the resident will understand the following concepts

-
- Types of data
- Coding
- Appropriate analysis
- Data collection
- Software
- Primary outcome
- Secondary outcome
- Types of data
 - Nominal
 - Ordinal
 - Interval
 - Ratio
- Dependent outcome variables
- Independent input variables that are hypothesized to affect the dependent variable
- Distributions
 - Normally distributed
 - Nonnormally distributed
- Hypothesis Testing
- Multivariable Methods

- Binary outcome
- Logistic regression
- Log-Linear analysis
- Measures of Association
- Survival Analysis
- Spreadsheets and Databases

Communicator

General Requirements

- Discuss appropriate information with mentors and colleagues
- Listen effectively.

Specific Requirements

- Recognize that being a good communicator is an essential function of a team involved in clinical research
- Establish relationships with other individuals doing research and foster the interest of colleagues
- Maintain clear, accurate and appropriate written records.

Collaborator

General Requirements

- Consult effectively with mentor.
- Contribute effectively to other colleagues knowledge.

Specific Requirements

- Identify and describe the role of other individuals involved in research projects
-

Manager

General Requirements

- Develop a plan for research

Specific Requirements

- Have basic knowledge Ethic Board approval, data management, and budget considerations

Health Advocate

General Requirements

- identify the relevant literature which may alter patients care
- contribute effectively to improved health of patients and communities on evidence based models of care

Specific Requirements

- Demonstrate knowledge of type of research finding of which the results cause change of practice
- Demonstrate sensitivity to special issues of gender, culture and social bias in research

Scholar

General Requirements

- Design and develop a research project

Specific Requirements

- conduct an appropriate literature search based on the clinical question;
- assimilate and appraise the literature;
- develop a system to store and retrieve relevant literature;

Professional

General Requirements

- Deliver highest quality care with integrity, honesty and compassion.

Specific Requirements

- exhibit appropriate personal and interpersonal professional behaviours practise medicine ethically consistent with obligations of a physician and based on evidence.

TABLE OF CONTENTS

VASCULAR SURGERY: OBJECTIVES FOR RESIDENTS TRAINING AS SPECIALISTS	2
.....	2
OBJECTIVES OF TRAINING.....	2
DEFINITION.....	2
GENERAL OBJECTIVES.....	2
SPECIFIC OBJECTIVES	2
Medical Expert/Clinical Decision-Maker.....	2
Communicator.....	5
Collaborator.....	5
Manager.....	6
Health Advocate.....	6
Scholar.....	7
Professional.....	7
Specialty Training Requirements	8
CARDIAC SURGERY ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS	10
.....	10
GENERAL OBJECTIVES.....	10
SPECIFIC OBJECTIVES	10
Medical Expert/Clinical Decision-Maker.....	10
Communicator.....	12
Collaborator.....	12
Manager.....	13
Health Advocate.....	13
Scholar.....	13
Professional.....	14
RADIOLOGY ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS	15
.....	15
GENERAL OBJECTIVES.....	15
SPECIFIC OBJECTIVES	15
Medical Expert/Clinical Decision-Maker.....	15
Communicator.....	16
Collaborator.....	16
Manager.....	16
Health Advocate.....	16
Scholar.....	17
Professional.....	17
PLASTIC SURGERY ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS	22
.....	22
GENERAL OBJECTIVES.....	22
SPECIFIC OBJECTIVES	22
Medical Expert/Clinical Decision-Maker.....	22
Communicator.....	22
Collaborator.....	23
Manager.....	23
Health Advocate.....	23
Scholar.....	23
Professional.....	24

MICROSURGERY ELECTIVE ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS.....	25
DEFINITION.....	25
GENERAL OBJECTIVES.....	25
SPECIFIC OBJECTIVE.....	25
Medical Expert/Clinical Decision-Maker.....	25
Communicator.....	26
Collaborator.....	26
Manager.....	26
Health Advocate.....	26
Scholar.....	26
Professional.....	27
ORTHOPAEDIC AND REHABILITATION ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS	28
DEFINITION.....	28
GENERAL OBJECTIVES.....	28
SPECIFIC OBJECTIVES	28
Medical Expert/Clinical Decision-Maker.....	28
2. Communicator.....	28
Collaborator.....	29
Manager.....	29
Health Advocate.....	29
Scholar.....	30
Professional.....	30
ROTATION IN RENAL TRANSPLANTATION, ANGIO-ACCESS, AND RENAL REVASCULARIZATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS	31
GENERAL OBJECTIVES.....	31
SPECIFIC OBJECTIVES	31
Medical Expert/Clinical Decision-Maker.....	31
2. Communicator.....	31
3. Collaborator.....	32
4. Manager.....	32
5. Health Advocate.....	32
6. Scholar.....	33
7. Professional.....	33
INTENSIVE CARE ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS	34
GENERAL OBJECTIVES.....	34
SPECIFIC OBJECTIVES	34
1. Medical Expert/Clinical Decision-Maker.....	34
2. Communicator.....	35
3. Collaborator.....	35
4. Manager.....	36
5. Health Advocate.....	36
6. Scholar.....	36
7. Professional.....	37
THROMBOEMBOLISM PROGRAMME ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS	38

GENERAL OBJECTIVES	38
SPECIFIC OBJECTIVES	38
1. Medical Expert/Clinical Decision-Maker.....	38
2. Communicator.....	38
3. Collaborator.....	39
4. Manager.....	39
5. Health Advocate.....	39
6. Scholar.....	39
7. Professional	40
PACEMAKERS AND INTERNAL DEFIBRILLATORS PROGRAMME ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS	41
GENERAL OBJECTIVES	41
SPECIFIC OBJECTIVES	41
1. Medical Expert/Clinical Decision-Maker.....	41
Basic knowledge	41
Technical skills	41
2. Communicator.....	42
3. Collaborator.....	42
4. Manager.....	42
5. Health Advocate.....	42
6. Scholar.....	43
7. Professional	43
ENDOVASCULAR SURGERY ROTATION: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS.....	44
DEFINITION.....	44
GENERAL OBJECTIVES.....	44
SPECIFIC OBJECTIVES	44
Medical Expert/Clinical Decision-Maker.....	44
Basic knowledge	44
Communicator.....	45
Collaborator.....	45
Manager.....	45
Health Advocate.....	46
Scholar	46
Professional	46
RESEARCH ELECTIVE: OBJECTIVES FOR VASCULAR SURGERY RESIDENTS	47
GENERAL OBJECTIVES	47
SPECIFIC OBJECTIVES	47
Medical Expert/Clinical Decision-Maker.....	47
Communicator.....	48
Collaborator.....	48
Manager.....	48
Health Advocate.....	48
Scholar	49
Professional	49