OVERVIEW

It is expected that the Cardiology Trainee be given graduated responsibility over the course of his/her training. The ultimate goal for the trainee is to evolve into a competent consultant in critical care cardiology and to be able to independently manage a high acuity Coronary Care Unit at the completion of the training period. This would involve comfort and expertise in all clinical aspects of the CCU in addition to expertise in bed management and triage skills and teaching of junior housestaff. Therefore the objectives for the cardiology trainee are expected to differ slightly for each year that the trainee is in the program:

OVERALL OBJECTIVES AND STRATEGIES

<table>
<thead>
<tr>
<th>Roles</th>
<th>Objectives</th>
<th>Strategies</th>
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</table>
| Medical Expert/Clinical Decision Maker | • Develop expertise in the diagnosis and management of a variety of acute cardiac conditions.  
  • Learn the appropriate use and interpretation of available diagnostic tests used in the management of acute cardiac patients.  
  • Learn to risk stratify patients with acute coronary syndromes.  
  • Learn the appropriate management strategies for a variety of acute cardiac diagnoses, including: high risk unstable angina pectoris, acute myocardial infarction, pulmonary edema, life threatening arrhythmias, cardiac tamponade, hypertensive emergencies, and aortic dissection.  
  • Learn the indications for a number of procedures relevant to the | • Study appropriate references and/or do literature searches to become familiar with the basic science and clinical aspects of a wide variety of acute cardiac conditions.  
  • Assess (history, physical, assessment and plan) each patient presenting for admission to the Coronary Care Unit (CCU) Service.  
  • Conduct daily rounds on all patients on the CCU Service.  
  • Initiate an appropriate investigation and management plan for all patients on the CCU Service.  
  • Supervise Junior Housestaff assigned to the CCU Service.  
  • Discuss cases with the Attending Cardiologist |
### UBC Postgraduate Program in Cardiology
#### Goals and Objectives, Coronary Care Unit

**January 1, 2007**

- **Management of acutely ill cardiac patients**, including:
  - Invasive hemodynamic monitoring with an intra-arterial catheter or Swan-Ganz catheter, insertion of a temporary trans-venous pacemaker, pericardiocentesis, insertion of an intra-aortic balloon pump and initiation of mechanical ventilation.
- **Understand the indications for urgent/emergency transplant assessment** as well as indications for ECMO and LVAD.
- **Acquire the technical skills** to perform a variety of procedures relevant to the management of acute cardiac patients, including:
  - Insertion of an intra-arterial catheter, insertion of a Swan-Ganz catheter, insertion of a temporary cardiac pacemaker, insertion of an intra-aortic balloon pump and pericardiocentesis and to be able to determine the effect of the intervention and interpret any data produced.
- **Learn the assessment and treatment** of patients with lifethreatening, refractory cardiac arrhythmias as well as management of patients with implantable cardioverter defibrillators.
- **Be able to interrogate implantable cardioverter defibrillators** assigned to the CCU Service.
- **Present cases encountered** on the CCU Service at one or more of the scheduled Cardiology Training Program rounds.
- **Present cases at Cardiology/Cardiac Surgery Work Conference** when patients are being considered for cardiac surgery.
### UBC Postgraduate Program in Cardiology
#### Goals and Objectives, Coronary Care Unit
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<table>
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<tr>
<th>Communicator</th>
<th>Collaborator</th>
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| - Learn to communicate appropriately with patients and their families regarding diagnosis, management options and clinical course.  
- Maintain communication with other members of the Health Care Team, including the patient’s Family Doctor.  
- Maintain complete and accurate documentation on the patient’s hospital chart. | - Initiate contact with patients at the time of their initial presentation and provide information regarding diagnosis and management plan.  
- Be available whenever possible to discuss the patient’s clinical course with the patient or the patient’s family as appropriate.  
- Keep complete and accurate notes in the patient’s hospital chart.  
- Maintain verbal communication when appropriate with nursing staff and other members of the Health Care Team regarding the patient’s condition and management plan.  
- Provide consultations and recommendations to the intensive care unit physicians regarding patients with cardiac issues  
- Contact Referring/Family Doctor directly at the time of the patient’s discharge to provide details of the patient’s admission and discharge/follow-up plan. |
| - Respect the roles of all members of the Health Care Team.  
- Seek consultation from | - Learn to work closely with other members of the Team (Attending Staff and Junior Housestaff). |
UBC Postgraduate Program in Cardiology
Goals and Objectives, Coronary Care Unit
January 1, 2007

<table>
<thead>
<tr>
<th>Role</th>
<th>Objectives</th>
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<tbody>
<tr>
<td><strong>Manager</strong></td>
<td>• Learn to work closely and cooperatively with the nursing staff and other members of the Health Care Team when appropriate.</td>
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<td>• To be aware of the bed availability in the CCU and to work within the Hospital Guidelines for bed management.</td>
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<td></td>
<td>• Appropriately risk-stratify patients for admission to the CCU Service.</td>
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<td></td>
<td>• Be efficient and effective in the investigation and management of patients admitted to the CCU Service.</td>
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<td></td>
<td>• Arrange for timely and appropriate discharge/transfer of patients from the CCU Service.</td>
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<tr>
<td><strong>Health Advocate</strong></td>
<td>• Learn strategies to effectively educate patients and their families regarding the pathophysiology of the patient’s illness and the importance of compliance and the potential for future risk.</td>
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<td></td>
<td>• Learn strategies to educate patients and their families regarding healthy cardiac behaviors.</td>
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<tr>
<td></td>
<td>• Initiate discussion or be available for patients and their families to discuss the patient’s illness with regards to pathophysiology and the importance of compliance to the prescribed regimen.</td>
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<tr>
<td></td>
<td>• Initiate or be available to discuss with patients and their families regarding healthy cardiac behaviors as appropriate.</td>
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<tr>
<td><strong>Scholar</strong></td>
<td>• Enhance knowledge base regarding a variety of cardiac conditions.</td>
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<td></td>
<td>• Develop a strategy for literature review/search for a wide variety of acute care of patients with</td>
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### UBC Postgraduate Program in Cardiology
### Goals and Objectives, Coronary Care Unit
### January 1, 2007

<table>
<thead>
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<th>professional</th>
<th>acute cardiac conditions.</th>
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<tbody>
<tr>
<td>Establish and adhere to a study program as it relates to the care of a variety of acute cardiac conditions.</td>
<td>Coordinate presentation of case and topic to internal medicine lunch time rounds</td>
</tr>
<tr>
<td>Coordinate presentation of case and topic to internal medicine lunch time rounds</td>
<td>Maintain professional relationships with all members of the Health Care team.</td>
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<tr>
<td>To deliver care of the highest quality with integrity, honesty and compassion.</td>
<td>When appropriate seek advice and assistance.</td>
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<tr>
<td>To learn the ethical, legal and professional obligations in the context of an Acute Care Cardiology Service.</td>
<td>Present and discuss case/s seen in the CCU at Cardiology Rounds with a focus on the legal or ethical aspects of the case.</td>
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SPECIFIC OBJECTIVES FOR EACH YEAR OF TRAINING

PGY-4 (FIRST YEAR FELLOW)

1. MEDICAL EXPERT/CLINICAL DECISION MAKER
   a. Be familiar with BCLS and ACLS protocols and be able to confidently manage and direct resuscitation techniques for cases of cardiopulmonary arrest.
   b. Be familiar with the cardiovascular physical exam as it pertains to the unstable coronary patient, with special attention towards the correct interpretation and clinical implications of cardiac murmurs in the unstable patient.
   c. Be familiar with the identification, risk stratification and management of patients presenting with undifferentiated chest pain and acute coronary syndromes (ACS). Specific goals include a familiarity with common cardiovascular imaging techniques such as electrocardiography, myocardial perfusion imaging, rest and stress echocardiography, exercise stress testing, chest roentgenography and angiography and their appropriate use in the diagnosis and management of patients with undifferentiated chest pain and ACS.
   d. Be familiar with the approach to the reperfusion of the ST elevation MI patient, and understand the principles of risk stratification, monitoring and secondary prevention strategies in such patients following acute management and stabilization.
   e. Be familiar with the approach and management of common atrial and ventricular arrhythmias and the appropriate use of antiarrhythmic drugs, pacing and defibrillation technology. The trainee should be familiar with the differential diagnoses of ST segment abnormalities and the morphological characteristics of ischemic and nonischemic ST changes. The trainee is expected to be able to consistently recognize a normal ECG, atrial fibrillation, bradyarrhythmias and the bundle branch and hemiblocks, and to be able to provide a rationale approach to wide complex tachycardias. The trainee should be familiar with the indications for and technique of emergency electrical cardioversion.
   f. Be familiar with the approach and management of acute and decompensated congestive heart failure. The trainee will be expected to be familiar with normal and abnormal cardiovascular hemodynamics and techniques used to assess them, including echocardiography and invasive intracardiac monitoring.
   g. Be trainee will be expected to recognize when endotracheal intubation and mechanical ventilation is required. Options for respiratory support should be considered but will be comanaged by intensive care unit physicians.
   h. Be familiar with the natural history, physical examination, clinical presentation and management of decompensated valvular heart disease and be familiar with the reasons for acute decompensation in patients with previously
stable valvular disease. The trainee should also be able to recognize when urgent valve replacement therapy is indicated in unstable cardiac patients with valvular disease.

i. Be able to provide a rational differential and initial approach for the patient presenting with a shock state. The trainee should be familiar with the hemodynamic effects and appropriate use of common inotropic and vasopressor agents and be familiar with the indications for urgent mechanical revascularization for cardiogenic shock.

j. Be familiar with the clinical presentation of patients with pericardial disease and be able to promptly recognize cardiac tamponade. The trainee should be familiar with the indications for emergent pericardiocentesis.

k. Be familiar with the presentation and management of patients with acute aortic dissection.

l. Be able to consistently and safely insert central venous and intraarterial catheters and be familiar with the techniques of, indications for and use of temporary transvenous pacing and pulmonary artery catheters.

m. Be familiar with basic ventilatory parameters using mechanical ventilation and be familiar with weaning strategies.

n. Be familiar with the indications for and interpretation of intraaortic balloon counterpulsation.

o. Be familiar with the indications for urgent echocardiography to recognize cardiac tamponade, acute mechanical complications of acute coronary syndromes and to help differentiate between different types of shock states.

p. Be familiar with the noncardiac complications of unstable cardiovascular disease (including complications associated with therapy) and be able to recognize when consultation with appropriate subspecialty services are indicated.

2. COMMUNICATOR

a. The trainee is expected to be able to consistently produce high quality dictated consult notes and discharge summaries, and be able to effectively discuss cases with referring and other consulting physicians.

b. The trainee is expected to communicate effectively with other allied health care professionals and be able to effectively outline a short term and long term treatment plan to nursing staff.

c. The trainee is expected to communicate and provide consultative advice to physicians in the intensive care unit with cardiac disease

d. The trainee is expected to communicate effectively with other housestaff and begin to take on both a leadership and teaching role.

3. MANAGER

a. The trainee is expected to work harmoniously with the other physicians and allied health staff in order to facilitate optimal patient flow through in the CCU. The trainee is expected to liaise closely with attending staff in order to develop and carry through appropriate treatment plans for all admitted patients.
b.

4. HEALTH ADVOCATE
   a. The trainee is expected to participate in discussions with patients and their families in the promotion of optimal cardiovascular health emphasizing both pharmacological and nonpharmacological approaches to the primary and secondary prevention of cardiovascular disease.

5. SCHOLAR
   a. The trainee is expected to familiarize him/herself with how to critically appraise clinical trials and to apply relevant trial data to the care of unstable cardiac patients. Trainees should be familiar with MEDLINE and how to search for articles relevant to the care of their patients.

6. PROFESSIONAL
   a. The trainee is expected to show the highest level of professional and moral integrity at all times when interacting with patients, families and allied health staff.

PGY-5 (SECOND YEAR FELLOW)

In addition to the expectations of a first year fellow, the second year fellow is expected to achieve the following objectives:

1. MEDICAL EXPERT
   a. The trainee is expected to consistently and correctly identify and risk stratify ACS patients and be able to provide a rational and evidence based diagnostic and treatment algorithm for patients with undifferentiated chest pain. Trainees should be able to consistently recognize electrocardiographic signs of ischemia and to be able to promptly recognize and appropriately manage the high risk ACS patient.
   b. The trainee is expected to be expert in the initial management of ST elevation MI, including how to choose between pharmacological and mechanical reperfusion techniques.
   c. The trainee is expected to be consistently able to recognize common atrial and ventricular dysrhythmias and offer rational differential diagnoses for specific arrhythmias. Trainees should be able to consistently recognize ventricular tachycardia and differentiate it from supraventricular tachycardia with aberrancy. The trainee should be consistently able to determine when temporary and permanent pacing and implantation of cardioverter-defibrillators are indicated. The trainee should be comfortable with the indications for, expected effects and side effects of antiarrhythmic pharmacotherapy. The trainee is expected to be consistently able to correctly identify the etiologies of ST segment abnormalities.
   d. The trainee is expected to consistently and correctly diagnose, investigate and manage acute and decompensated congestive heart failure, including the appropriate use of vasoactive agents and the use of intracardiac monitoring including PA catheters.
e. The trainee is expected to promptly recognize acquired or chronic concomitant valvular disease in the unstable cardiac patient, understand their significance when documented in unstable cardiac patients, and be able to provide an appropriate management strategy. The trainee should be very knowledgeable with current indications for urgent valve replacement.

f. The trainee is expected to consistently and correctly differentiate different shock states and be facile with the use of inotropic and vasopressive agents for their treatment. The trainee should be competent and intracardiac monitoring for the diagnosis and followup of patients in shock. Recognition of the need for ECMO and possible heart transplantation is required.

g. The trainee is expected to consistently recognize acute aortic dissection.

h. The trainee is expected to be able to consistently utilize and interpret images obtained with chest roentgenography, echocardiography, angiography and perfusion imaging and to correctly interpret exercise stress test results and be able to apply these interpretations to the management of cardiovascular patients admitted to the CCU.

i. The trainee is expected to be comfortable and technically facile with the insertion of PA catheters and transvenous pacing devices under supervision, although independent placement is to be encouraged.

2. COMMUNICATOR
   –GOALS AS WITH THE PGY 4-

3. MANAGER
   j. The trainee is expected to take on more of a leadership role within the CCU and to be able to participate regularly in bed management issues and patient flow issues. The trainee is also expected to take on a leadership role in the teaching and organization of the working day of junior housestaff.

4. HEALTH ADVOCATE
   k. –GOALS AS WITH THE PGY 4-

5. SCHOLAR
   l. The trainee is expected to have a solid understanding of the trial based evidence for cardiovascular therapeutics and diagnostics and be familiar with well known (“classic”) trials in acute care cardiology.

6. PROFESSIONAL
   m. -GOALS AS WITH THE PGY 4-
PGY-6 (THIRD YEAR FELLOW)

In addition to the expectations of a first or second year fellow, the third year fellow is expected to achieve the following objectives:

1. MEDICAL EXPERT
   a. The trainee is expected to be expert in the area of the diagnostic approach and management of acute coronary syndromes, unstable arrhythmias and acute heart failure. The trainee is expected to be expert in the use of ancillary diagnostic testing and imaging to assist in the management of these conditions. The trainee should be confident enough in the management of ST elevation MI to be able to advise management strategies, including patient transfer if necessary, to physicians in peripheral centres.
   b. The trainee is expected to take a leadership role in the acute management of unstable patients and be able to direct other housestaff in resuscitation techniques.
   c. The trainee is expected to be expert in the interpretation of abnormal cardiovascular hemodynamics and to be able to offer timely and appropriate pharmacological and/or mechanical intervention when appropriate.
   d. The trainee is expected to be confident managing refractory ventricular arrhythmias.
   e. The trainee is expected to be able to independently and safely obtain intra-arterial and central venous access and be able to independently place, interpret and utilize temporary transvenous pacing technology and pulmonary artery catheters.

2. COMMUNICATOR
   f. —GOALS AS WITH THE PGY 4-

3. MANAGER
   g. The trainee is expected to act at the level of a junior attending in the CCU and be able to competently manage the medical and basic administration of the CCU independently. The trainee is expected to take a major leadership role in the education of junior housestaff.

4. HEALTH ADVOCATE
   h. —GOALS AS WITH THE PGY 4-

5. SCHOLAR
   i. The trainee is expected to be able to consistently be up to date on relevant literature on the diagnosis and management of acute coronary syndromes and acute congestive heart failure.

6. PROFESSIONAL
   j. GOALS AS WITH THE PGY 4-