



Program Specifications for Master Degree: **Cardiovascular Medicine**

Program type: Single

Department offering the program: Department of Cardiovascular Medicine

Program Code: CARD 800

Total credit points: 160

Academic year: 2015/2016

Date of approval: March 2012

Program Coordinators: Prof. Hossam Kandil

Prof. Azza Farrag

External evaluators: Ramez Elguindy (Ain Shams University)

I. Aim of the program:

The educational process in Cardiovascular Medicine aims to provide basic knowledge, intellectual, clinical and transferable skills to produce competent specialists in cardiology. These specialists will be capable of providing specialized care of the highest order to patients with cardiovascular disorders in the community as well as clinical tertiary care centers. They shall recognize the health needs of the community and carry out professional obligations ethically and keeping their standards by engaging in continuing medical education. The program also aims to introduce the candidate to the basics of scientific medical research.

II. Intended learning outcomes of program (ILOs)

A. Knowledge and understanding: By the end of the program the candidate should:

1. Know basic scientific knowledge related cardiovascular medicine.
2. Identify common cardiovascular problems
3. Understand basic pathology of different cardiovascular disorders.
4. Identify cardiovascular disorders in various systemic diseases.
5. Understand basic concepts of noninvasive cardiovascular diagnostic tools (e.g., ECG, CXR, echocardiography, radionuclide imaging...)
6. Understand basic concepts of cardiac catheterization.
7. Describe different management modalities for common cardiovascular problems: life style modification, pharmacological, percutaneous, and surgical management

B. Intellectual skills: By the end of the program the candidate should be able to;

1. Interpret the results of different investigations related to cardiovascular diseases.
 2. Set up clinical decision making according to cultural and individual needs.
 3. Offer treatment plans for common and rare cardiovascular problems.
- C. Professional and practical skills: By the end of the program the candidates should be;
1. Able to collect clinical data specially the art of history taking.
 2. Able to examine and identify signs of common and rare cardiovascular disorders.
 3. Able to interpret surface ECG – CXR within the context of clinical evaluation.
 4. Able to perform and to interpret transthoracic echocardiographic study of common and rare cardiovascular diseases.
 5. Able to interpret results of cardiac catheterization for different acquired and congenital cardiovascular diseases.
 6. Able to interpret results electrophysiologic studies.
 7. Able to offer proper medical treatment for common and rare cardiovascular disorders.
 8. Able to manage all cardiovascular emergencies properly.
- D. General and transferable skills: By the end of the program the candidates should be able to;
1. Communicate with the patients to gain their confidence.
 2. Communicate with other health care providers.
 3. Appreciate team working.
 4. Understand different scientific methodologies and have critical reading abilities
 5. Achieve Computer skills necessary to make use of medical data bases and used to internet for communication.
 6. Able to write scientific article and master thesis under basics of scientific research.

III. Academic standards.

1. Academic reference standards: The academic standards of cardiovascular program is adopted and accredited by the departmental council
2. External references for standards:
 1. Core curriculum for the general cardiologists prepared by the education committee of the European Society of Cardiology
 2. Curriculum and syllabus for Interventional Cardiology subspecialty training in Europe. EuroInterv.2006;2:31-36
 3. The 2007 Curriculum in Cardiology: an overview for trainees and trainers. Br J Cardio. 2007;14:286-288
 4. Updated reports and statements of the American College of Cardiology/American Heart Association Task Force on Clinical

Competence in different domains of Cardiovascular Medicine.

(www.my.americanheart.org)

5. Core Cardiology Training Symposium (COCATS) Guidelines for Training in Adult Cardiovascular Medicine. J Am Coll Cardiol 1995; 25: 1-34

IV. Program admission requirements.

According to the Faculty of Medicine, Cairo University Bylaws for Post Graduate Programs (July 2009), applicants should have MBBCh or equivalent degree. According to Cairo University requirements, all applicants for postgraduate studies should fulfill preliminary courses on the following subjects; Medical statistics I – English language (Toefl or equivalent degree) – Computer skills (ICDL) or equivalent computer course offered by the medical education center (MEDC). Admission to the program is open during July. Training prior to registration may be accredited according to departmental and hospital evaluation. Admission for the program is open during July.

V. Program structure and contents.

Program duration: Three years.

Program structure: (See table)

Total Credit points	<u>160 credit points</u>
• <u>First part: 1.5 years</u>	<u>60 credit points</u>
Candidate should fulfill the following: one academic year (30 weeks)	
○ Compulsory courses;	
▪ Basic sciences courses	10 credit points
▪ General medicine course	4 credit points
○ Elective courses	1 credit point
○ Scientific activities	2 credit points
○ Residency training program Phase 1: (Basic General Medicine and cardiology for one and half years)	43 credit points
• <u>Second part: 1.5 years</u>	<u>80 credit points</u>
Candidate should fulfill the following: one academic year (30 weeks)	
○ Basic cardiology courses:	16 credit points
○ Scientific activities	4 credit points
○ Residency training program phase 2: (Advanced cardiology for one and half year)	60 credit points
• <u>Master Thesis: (completed during second part)</u>	<u>20 credit points.</u>

Table 1: First part

Courses	Course modules	Credit points	total	ILOs
Compulsory courses				
Physiology	<ul style="list-style-type: none"> • Cardiovascular system • Renal and Electrolyte 	1.5		1. a, b
Biochemistry	<ul style="list-style-type: none"> • General principles • Carbohydrate & diabetes metabolism • Lipid metabolism 	0.5		1. a, b
Pathology	<ul style="list-style-type: none"> • Cardiovascular system 	4		1. c
Pharmacology	<ul style="list-style-type: none"> • General pharmacology • Cardiovascular drugs 	4		1.a 2.c
Internal Medicine	<ul style="list-style-type: none"> • General principles • Renal and endocrine • Respiratory • Neurology 	4		3. a,b
Elective Courses Candidate choose 2 courses:				
	<ul style="list-style-type: none"> • Critical Reading • Scientific writing • EBM • Medical ethics • Medical statistics II • Hospital administration 	0.5 0.5 0.5 0.5 0.5 0.5	1	4.a,b,c,d,e,f
Scientific activities			2	3.c,d,e,f
Residency training program (phase 1 basic training)			43	1.a,b,c,d,e,f,g 3.g,h

Table 2: Second part

item	Credit points	ILOs.
1- Clinical cardiovascular medicine	10	1.a,b
2- Core procedures	6	3.a,b
Scientific activities	4	3.c,d,e,f
Master thesis	20	4.d,e,f
Residency training program (phase 2)		1.a,b,c,d,e,f,g 3.g,h

Residency Training Program

- **First phase (Basic Training):**

According to the Faculty of Medicine, Cairo University Bylaws for Post Graduate Programs (July 2009), all the students should have a basic training in general medicine for 18 months. During this period the students attend the basic sciences courses as well as the general surgery course. They also should complete the elective courses

- **Second phase (Special Training):**

- All students should complete the basic special part of the resident training program in the cardiology department in order to acquire the needed credit points. This is achievable via attending: outpatient clinics, inpatient ward, cardiology critical care unit, the noninvasive cardiovascular Lab. as well as the cardiac catheterization lab.
- Experiential learning opportunities:
 1. Every patient seen, on the ward or in out-patients, provides a learning opportunity, which will be enhanced by following the patient through the course of their illness. Patients seen should provide the basis for critical reading around clinical problems.
 2. Every time a trainee observes another doctor, senior staff or fellow trainee, seeing a patient or their relatives there is an opportunity for learning.
 3. Ward-based learning including ward rounds. Ward rounds, including those post-take, should be led by a senior staff and include feed-back on clinical and decision making skills.
 4. Supervised consultations in outpatient clinics. Trainees should have the opportunity to assess both new and follow-up patients and discuss each case with the supervisor so as to allow feedback on diagnostic skills and gain the ability to plan investigations.
 5. Trainees need to learn to make increasingly independent decisions on diagnosis, investigations and treatment consistent with their level of experience and competence and with maintaining patient safety. These decisions should be reviewed with their supervising senior staff.
 6. There are many situations where clinical problems are discussed with clinicians in other disciplines, such as cardiac surgical multidisciplinary meetings. These provide excellent opportunities for observation of clinical reasoning.

NB: The details of the training program are provided in separate document. The third phase of residency training (advanced training) is part of the MD degree

Master Thesis

All master-degree students should prepare a thesis in an area of active research that is closely linked to cardiovascular medicine. The department and the ethical committees must approve the protocol of the research. The thesis (should / may) include a review part and a research part. The thesis is supervised by one or more senior staff members and may include other specialties according to the nature of the research. The thesis should be evaluated and approved by a committee of three professors including one of the supervisors and an external professor.

Scientific Activities:

The students should participate in the following scientific activities of the department:

- Staff round: 3 rounds every week
 - The Department Conference: once weekly
 - Journal club (presenting scientific articles): once weekly
 - Mortality and morbidity conference: once weekly
 - Congenital club: once weekly
 - Postgraduate seminars: once weekly
 - Echocardiography revision session: once weekly.
 - ECG and EP reading session: once weekly
 - Cardiac catheterization revision session: once weekly
 - Scientific meetings arranged by the Department.
 - Scientific meetings arranged by other departments or Universities.
 - Attendance of discussion of thesis.
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- Clinical Cardiology Grand Rounds provides a forum for Cardiology faculty members, as well as invited guest speakers, to provide updates and reviews of major topics in cardiology. All presentations are clinically oriented and start with a case presentation. Attendance is required for all fellows.
 - Echo conference covers the full range of cardiology topics as applied to echocardiography. This is accomplished via didactic presentations given by the echo faculty and by the interactive review of echocardiograms. Emphasis is placed on echo interpretation, understanding Doppler techniques and Doppler hemodynamics, limitations of echo, and quality assurance. Transoesophageal and stress echo techniques and potential complications are also discussed. Attendance is required for all non-invasive fellows.
 - EP Conference is conducted by the EP faculty and covers all areas of cardiac electrophysiology. Emphasis is placed on intracardiac electrocardiograms, pacemaker troubleshooting, and device interrogation/management. Attendance is required for all fellows.
 - ECG Conference is a weekly conference that focuses on preparation for the ECG portion of the cardiology boards. Several ECGs are reviewed in an interactive forum each session. Attendance is required for all fellows.
 - Cath Conference is designed to allow instruction in the techniques of cardiac catheterization and angiography and to provide a forum to discuss clinical management issues related to patients referred for cardiac catheterization. Cath Lab quality assurance will also be addressed. The Cardiothoracic Surgery members are invited to attend the conference and greatly enhance the discussion by expanding upon surgical issues and offering opinions from the surgical standpoint. Attendance is required for all cath fellows.
 - Journal Club is held every week. It provides a forum for residents and faculty members to interact in a less formal setting. The main goal of journal club is to help fellows learn to critically assess the literature and to facilitate the practice of evidence-based medicine. The articles reviewed usually cover emerging or controversial topics in cardiology. All candidates are expected to attend.

Each activity will be monitored and given credit points registered in a Resident logbook. The student should collect the required points before being allowed to sit for final exam

Courses / items		A Knowledge and Understanding					B Intellectual Skills					C Professional Skills						
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	6	1
Code	Name																	
<i>CARD 819 T</i>	Cardiology (Level A)	x	x	x			x	x	x			x	x	x				
<i>CARD 819 Ta</i>	Clinical cardiovascular medicine	x	x	x			x	x	x			x	x	x				
<i>CARD 819 Tb</i>	Core procedure	x	x	x			x	x	x			x	x	x				
	Scientific Activities																	x
<i>CARD 819 C2</i>	Advanced Training Program						x	x	x	x	x	x	x	x	x	x	x	x
	Master Thesis				x					x					x			

CARDIOVASCULAR MEDICINE MASTER DEGREE PROGRAM MATRIX

V. Regulations for progression and program completion

After collecting the required credit points for the respective courses, the first phase of the residency training, and the scientific activities, the student will be eligible to sit for the first part examination. In case the student fails to pass the examination, he/she may proceed in the clinical training and can resubmit for the next examination. After passing the first part, the student submits a protocol for Master Thesis at the beginning of the second part. Before submitting to the final examination he/she should finish the thesis and get approval, complete phase 2 of special training program, and collect the required credit points. The candidate will receive his/her degree after passing this final examination. Master degree should be obtained within a maximum of 6 years after registration date.

VI. Assessment

Supervision & Monitoring of the Training Program:

According to the Faculty of Medicine, Cairo University Bylaws for Residency Training Programs, coordinators carry continuous assessment during the program. A residency training logbook including scientific activities will be kept for each student to document all his/her clinical, laboratory and/or other activities as well as his/her participation in different scientific activities. The head of the department should allow the students to undergo the final examination when they complete their training program and collect the credit points needed.

A: Assessment Tools:

First Part Final Exam:

- **Biochemistry:** Written exam (short or multiple choice questions) + Oral Exam
- **Physiology:** Written exam (short or multiple choice questions) + Oral Exam
- **Pathology:** Written exam (short or multiple choice questions) + Oral Exam
- **Pharmacology:** Written exam (short or multiple choice questions) + Oral Exam

Internal Medicine Examination

- Written examination: One paper
- Oral examination
- Clinical examination (including one long plus short cases)

Second Part Final Exam:

Cardiovascular Examination

- Written exams (short or multiple choice questions)
 - Paper one (Clinical Cardiology multiple choice questions)
 - Paper two (Clinical cardiology short questions)
- Oral examination
- Clinical examination (including one long plus short cases)
- Practical (image interpretation) examination

Basic Cardiovascular Medicine: Written exam (short questions)

Weighting Of Assessment: Marks allocated to courses (50 marks for each credit point)

Course	Written	Oral	Clinical/practical	Total
First part				600 marks
Biochemistry	25	25	----	50
Physiology	75	75	----	150
Pathology	100	100	----	200
Pharmacology	100	100	----	200
General Medicine	100marks	100 marks	100 marks	300 marks (converted to 70 marks)
Second part				
Cardiovascular disease	Paper 1: 100 Paper 2: 100	100 marks	200 marks	500 marks
Basic Cardiology	30 marks	----	----	30

Remarks

- Passing mark in a written exam is 60%

VII. Evaluation of program intended learning outcomes

Evaluator	Tool	Sample
External evaluator	1- Review program and courses 2- Attend the final exam.	Before implementation and Bi-annually
College Quality Assurance committee	Annual program review	Before implementation and annually

Date of approval by department council: March 2012

Signatures

Program Coordinator

Prof. Azza Farrag

Head of Department

Prof. Hossam Kandil