



Program Specification for Master Degree in Adult Critical Care Medicine

Program type: Single

Program code: CCM 800

Department offering the program: Department of Critical Care Medicine

Total credit points: 173

Academic year: 2015/2016

Date of Approval by Department Council: July 2015

Program Coordinators: Prof. Dr. Osama Tayah, MD

External evaluator: Prof. Dr. Mahesh Nirmalan; Manchester University, UK

I. Aim of the Program:

The master degree program in the Adult Critical Care Medicine is a unique structural postgraduate training program that will help to fulfill the current critical national need for trained physicians in this field. This program is designed to prepare physicians for practicing competently and independently in Critical Care Medicine. Specifically it teaches the fundamental skills, knowledge, and humanistic qualities inherent to Critical Care Medicine practice and provides progressive responsibility as well as experience in the application of these principles to enable effective management of clinical problems. Upon completion of this program, the candidates should be capable of practicing Critical Care Medicine, learning new skills and knowledge during their careers, and monitoring both their own physical and mental well-being and that of others.

II. Intended Learning Outcomes of Program (ILOs):

A. Knowledge and Understanding:

By the end of the program the candidate should be able to:

1. Recognize and master the medical science and technology used in the intensive care units.
2. Retrieve the appropriate ethical standards and cope with the psychological and social effects of critical illness on patients and their families.
3. Identify critical disorders in various systemic diseases.

4. Interpret the noninvasive diagnostic tests during the daily ICU practice (e.g., ECG, CXR, echocardiography, point of care ultrasonography, etc.).
5. Recognize the basic concepts of cardiac catheterization and electrophysiological studies (EPS).
6. Describe different management modalities for common critical care problems such as the pharmacological, interventional, 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 critical diseases.
2. Set up clinical decision making according to cultural and individual needs.
3. Offer treatment plans for common and rare critical care problems.

C. Professional and Practical Skills:

By the end of the program the candidates should be able to:

1. Collect clinical data specially the art of history taking.
2. Examine and identify signs of common and rare critical care disorders.
3. Interpret ECG, CXR, ABGs within the context of clinical evaluation.
4. Interpret nuclear cardiac scans.
5. Perform and interpret transthoracic echocardiographic study of common and rare cardiovascular diseases.
6. Perform and interpret the results of cardiac catheterization for different acquired and congenital cardiovascular diseases.
7. Perform and interpret results of the electrophysiological studies (EPS).
8. Offer proper medical treatment for common and rare critical care disorders.
9. Manage properly all cardiovascular, pulmonary, central nervous, renal, liver, surgical, and hematologic emergencies.

D. General and Transferable Skills:

By the end of the program the candidates should be able to:

1. Communicate with the patients and their families to gain their respect and cooperation.

2. Manage the critically ill patients in a multi-disciplinary team model.
3. Demonstrate the critical reading abilities and contribute into the contemporary research fields with different scientific methodologies.
4. Master the computer skills necessary to use the medical databases and the internet for better communication in the ICU.
5. Write scientific article and master thesis under basics of scientific research.

III. Academic Standards:

- 1- **Academic Reference Standards:** The academic standards of the Adult Critical Care Medicine program are adopted and accredited by the departmental council.
- 2- **External References for Standards:** This program is unique since it incorporated different topics from different disciplines according to the guidelines for advanced training for physicians in critical care, American College of Critical Care Medicine of the Society of Critical Care Medicine; Crit Care Med 1997; 25:1601-1607.

IV. Program Admission Requirements:

According the Faculty of Medicine, Cairo University Bylaws for Postgraduate programs (July 2009), applicants should have MBBCh or equivalent degree. Admission to the program is open during January and July. Prior to the registration and enrollment, the candidate may be accredited according to departmental and hospital evaluation.

V. Program Structure and Contents:

Program duration: Three academic years

Program structure: Total Credit points = 173

- **First part: 1.5 years - Total credit points 63 (Table 1)**

Candidate should fulfill the following:

- Compulsory courses; one academic year (30 weeks, starts on October)
 - **Basic sciences courses: 10 credit points**
 - **Pharmacology** 1 credit point
 - **Pathology** 1 credit point
 - **Medical Microbiology and Immunology** 1 credit point
 - **Medical Biochemistry & Molecular Biology** 1 credit point
 - **Physiology** 1 credit point
 - **Internal Medicine** 2 credit points

- **Fundamentals of Critical Care Medicine** **3** credit points
 - Elective courses **1** credit point
 - Scientific activities **2** credit points
 - Residency training program (Phase 1) **50** credit points

- **Second part: 1.5 years - Total credit points 110 (Table 2)**

Candidate should fulfill the following:

- Compulsory courses; one academic year (30 weeks) **16** credit points
 Critical Care Medicine (basic level):
 - **Cardiology** **4** credit points
 - **Nephrology** **2** credit points
 - **Pulmonology** **3** credit points
 - **Neurology** **2** credit points
 - **Gastroenterology** **2** credit points
 - **Surgical care** **3** credit points
- Scientific activities **4** credit points
- Residency training program (Phase 2) **70** credit points
- Master Thesis: completed during the second part **20** credit points

Table 1: First Part

Course Code	Course Title	Credit points		ILOs
		CPs	Total = 63 CPs	
I- Compulsory courses (One academic year):				
CCM 807	Pharmacology	1	10	A1, A6
CCM 808	Pathology	1		A1,A6
CCM 806	Medical Microbiology and Immunology	1		A1,A6,B1
CCM 803	Medical Biochemistry & Molecular Biology	1		A1,A6,B1
CCM 804	Physiology	1		A1,A4,A5
CCM 811	Internal Medicine	2		A1,A4,C1
CCM 826	Fundamentals of Critical Care Medicine	3		A1,A2,A3,A4, B1,B3,D1,D2
II- Elective Courses (MEDC): Candidate choose 2 courses				
MEDC 1	Critical Reading	0.5	1	A2,D1,D2,D3, D4,D5
MEDC 2	Scientific Writing	0.5		
MEDC 3	Evidence-Based Medicine (EBM)	0.5		
MEDC 4	Medical Statistic II	0.5		
MEDC 5	Medical Ethics	0.5		
MEDC 6	Communication Skills	0.5		
III- Scientific Activities			2	D3,D4,D5
CCM 826C1	IV- Residency Training Program (RTP) Phase I: basic clinical training		50	B1,B2,C1,C2, C3,C4,C6,D1, D2,D3

Table 2: Second Part

Course Code	Course Title	Credit Points		ILOs
		CPs	Total = 110 CPs	
CCM 826 T	I- Critical Care Medicine: Basic level			
CCM 826 Ta	a- Critical Care Cardiology	4	16	A2→A6,B2,B3 C4→C7,C9,D1
CCM 826 Tb	b- Critical Care Nephrology	2		A6,B2,B3, C1,C2,C9,D1
CCM 826 Tc	c- Critical Care Pulmonology	3		A6,B2,B3, C1,C2,C9,D1
CCM 826 Td	d- Neuro-critical Care	2		A6,B2,B3, C1,C2,C9,D1
CCM 826 Te	e- Critical Care Gastroenterology	2		A6,B2,B3, C1,C2,C9,D1
CCM 826 Tf	f- Surgical Critical Care, Organ Transplantation & Toxicology	3		A2,A3,A6,B2,B3, C1,C2,C9,D1
	II- Scientific Activities	4		B2,B3,C8 D2→D5
	III- Master Thesis	20		A6,B2,B3 D3→D5
CCM 826C2	IV- Residency Training Program (RTP) Phase II: special clinical training	70		A6,B1→B3 C1,C2,C3,C4,C6, C9,D1→D3

▪ **Residency “Practical” Training Program (RTP):**

1- Basic Training:

According the Faculty of Medicine, Cairo University Bylaws for Post Graduate Programs (July 2009), all the candidates should have basic critical care training for 18 months. They should spend at least 12 months in a critical care medicine department, 3 months in the internal medicine department, and 3 months in the emergency department. During this period the candidates will attend the basic sciences courses as well as the fundamentals of Critical Care Medicine course. They also should complete the elective courses.

2- Special Training:

All students should complete the special part of the residency training program in the critical care medicine department. They should spend 18 months in order to acquire the needed credit points. During this period the students will attend the critical care medicine course of the second part and will participate in the scientific activities of the department.

NB: The details and requirements of the training program are illustrated in separate document

▪ Master Thesis:

All master-degree students should prepare a thesis in critical care 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 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 candidates should participate in the scientific activities of the department such as:

- Journal club once every 1-2 weeks
- Monthly mortality and morbidity discussions
- Weekly grand round lectures
- Seminars (including recent topics and controversial issues) once weekly. Candidates are expected to participate in the discussions.
- Scientific meetings and conferences arranged by the department
- Attendance of thesis discussions

Each activity is monitored and given credit points registered in a special section in the residency-training logbook. The student should collect the required points before allowed to sit for final exam.

VI. Regulations for Progression and Program Completion:

After collecting the required credit points for the respective courses of the Adult Critical Care syllabus, phase I of the residency training, and the scientific activities, the candidate will be eligible to sit for the first part examination. In case he/she 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 candidate 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 II of special training program, and collect the required credit points. The candidate will receive his degree after passing this final examination. Master degree should be obtained within a maximum of six years after registration date.

VII. Assessment:

A- Assessment Tools:

▪ Supervision & Monitoring of the Training Program:

According to the Faculty of Medicine, Cairo University Bylaws for practical training programs, the supervisors carry continuous assessment during the program. A practical training program logbook will be kept for each candidate to document all his/her practical, procedural, operative activities as well as

his/her participation in different scientific activities. The head of the department should allow the candidates to undergo the final examination when they complete their training program and collect the needed credit points.

▪ **Formal Assessment:**

According to the Faculty of Medicine, Cairo University Bylaws for postgraduate programs (July 2009), the students should be assessed at the end of the program.

I. First Part Final Exam:

- 1- **Medical Biochemistry & Molecular Biology / Medical Microbiology and Immunology**: three hours written exam (two papers) including variety of questions e.g. long and short essays as well as multiple choice questions + oral exam.
- 2- **Pathology / Pharmacology**: three hours written exam (two papers) including variety of questions e.g. long and short essays as well as multiple choice questions + oral exam.
- 3- **Physiology**: two hours written exam including variety of questions e.g. long and short essays as well as multiple choice questions + oral exam.
- 4- **Internal Medicine**: three hours written exam including variety of questions e.g. long and short essays, problem solving as well as multiple choice questions + oral exam + clinical exam.
- 5- **Critical Care Medicine**: three hours written exam including variety of questions e.g. long and short essays, problem solving as well as multiple choice questions + oral exam.

II. Second Part Final Exam:

Two written exam papers three hours each (paper 1 and 2) including variety of questions e.g. long and short essays, problem solving as well as multiple choice questions + oral exam + clinical exam + practical exam.

B: Assessment Schedule:

I. First Part Final Exam:

The written will be held in April/October for 5 days:

- *Day 1: Medical Biochemistry & Molecular Biology / Medical Microbiology and Immunology: three hours written exam (two papers)*
- *Day 2: Pathology / Pharmacology: three hours written exam (two papers)*
- *Day 3: Physiology (two hours written exam)*
- *Day 4: Internal Medicine (three hours written exam)*
- *Day 5: Critical Care Medicine (three hours written exam)*

This will be followed by the clinical and oral examinations in separate days.

II. Second Part Final Exam:

The written will be held in May/November for 2 days:

- *Day 1: Critical Care Medicine: three hours written exam (paper 1)*

- Day 2: Critical Care Medicine: three hours written exam (paper 2)

This will be followed by the clinical, oral and practical examinations in separate days.

C: Weighing of Assessment (Marks allocated to courses):

50 marks for each credit point according to Table 3.

Table 3: Weighing of Assessment (Marks allocated to courses)

Course	Written	Oral	Clinical/Practical	Total
I- First Part:				
Biochemistry + Microbiology	30 + 30	20 + 20	-----	100
Pathology + Pharmacology	30 + 30	20 + 20	-----	100
Physiology	30	20	-----	50
Internal Medicine	40	30	30	100
Critical Care Medicine	90	30	30	150
Total First Part				500
II- Second Part:				
Critical Care Medicine	175 +175	150	200 + 100	
Total Second Part				800

Remarks

- It is mandatory to pass all the papers of the written exams separately.
- The passing mark in any written exam is $\geq 60\%$.

VIII. Evaluation of Program Intended Learning Outcomes:

Evaluator	Tool	Sample
1. Senior Students	Questionnaire at the end of the program	All the PG students
2. Alumni	The faculty is currently developing an Alumni office for postgraduates	Not yet determined
3. Stakeholders	A meeting will be arranged during the annual conference of the department	Available representatives from: <ul style="list-style-type: none"> • Army hospitals • National medical insurance • Medical syndicate • Ministry of health
4. External Evaluators	Review the program and courses Attending the final exam.	Once before implementation Bi-annual report
5. College Quality Assurance Committee	Annual program review	

- **Date of Revision:**
- **Program Coordinator:** Prof. Dr. Osama Tayah, MD
- **Assistant Coordinator:**

Program Coordinator

Prof. Dr. Osama Tayah, MD

Head of Department

Prof. Dr. Waheed Radwan, MD