

AL-AZHAR UNIVERSITY
FACULTY OF MEDICINE

**Course Specification For
Doctorate degree In Cardio-
Thoracic Surgery**

2015/2016

BASIC INFORMATION

Program Type: doctorate Degree in Cardio-Thoracic Surgery

Program code: 07-700-Cardiothorac

Department offering the Program: Department of Cardio-Thoracic Surgery

Academic year: 2015/2016

Program Coordinator:

PROFESSIONAL INFORMATION

I. AIMS OF THE PROGRAM

This program aims to produce a specialist who will have the clinical knowledge, the surgical expertise and the professional skills necessary for:

- a. The diagnosis, evaluation and management of diseases of the heart, lungs, esophagus and chest.
- b. Undertaking surgical treatment of a wide range of serious conditions some of them may require major and complex procedures.
- c. Mastering the technology that is required to support these operations such as cardiopulmonary bypass, invasive monitoring and minimally invasive equipment.
- d. Proficiency in all aspects of postoperative care of patients in the intensive care unit.
- e. Working closely with colleagues in Cardiology, Respiratory Medicine, Oncologic Medicine, Anesthesia and Intensive care. He should be able to develop and apply appropriate professional attitude , ethical principles and communication skills.

II. INTENDED LEARNING OUTCOMES (ILOs)

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

1. KNOWLEDGE AND UNDERSTANDING

- 1) Diagnose cardiac and thoracic surgical problems based on clinical methods.
- 2) Describe the etiology, pathogenesis, clinical features, complications and management of cardiothoracic surgical conditions.
- 3) Interpret relevant laboratory, radiologic and cardiologic investigations for the purpose of diagnosis.
- 4) Arrive at a treatment plan/s based on 1 & 2 and discuss pros and cons with the patient and his family.
- 5) Describe the operative details of cardiothoracic surgical operations and explain the principles of major operations.
- 6) Discuss the principles and practice of preoperative preparation and postoperative care.
- 7) Be able to carry out surgical operations for cardiac and thoracic emergencies after quickly assessing the patient and synthesizing available clinical and investigational information.
- 8) Describe the anatomy of surgically important regions, organs and structures of the thorax.
- 9) Describe the surgical pathology of organs and structures of the thorax.
- 10) Recognize the legal and ethical aspects of cardiothoracic practice.
- 11) Keep abreast of current knowledge and recent advances in the field.
- 12) Attend continuing education programs for updating the knowledge.
- 13) Teach the undergraduate medical students as well as nursing, physiotherapy, occupational therapy and perfusion students.
- 14) Carry out research and publications in the field.
- 15) Be able to design scientific research methods and choosing proper methods for statistical analysis of data.

2. INTELLECTUAL SKILLS

- 1) Interpret patient's symptoms and physical signs in terms of their anatomic, pathologic and functional diagnostic significance in relation to cardiothoracic surgery.
- 2) Identify common clinical cardiothoracic surgical problems.
- 3) Analyze common cardiothoracic problems.
- 4) Solve common cardiothoracic problems.
- 5) Select and prioritize the appropriate investigations needed for every cardiothoracic patient.
- 6) Integrate the results of clinical and investigational findings to formulate the appropriate diagnosis.
- 7) Formulate management strategies for common clinical cardiothoracic surgical problems.
- 8) Manage the preoperative workup of patients undergoing elective procedures.
- 9) Perform diagnostic and therapeutic procedures.
- 10) Perform emergent surgical procedures for trauma.
- 11) Perform planned elective open and closed cardiac procedures as well as thoracic surgical procedures.
- 12) Effectively manage the patient in postoperative intensive care.

3. PROFESSIONAL AND PRACTICAL SKILLS

- 1) Obtain accurate and complete cardiothoracic surgical history.
- 2) Document accurate and complete cardiothoracic surgical history.
- 3) Examine the patient systematically as well as locally with proper note taking.
- 4) Perform emergency-directed examination for patients with common cardiothoracic surgical emergencies.
- 5) Perform bedside tests.
- 6) Identify the clinical manifestations of all cardiothoracic surgical diseases including emergencies.
- 7) Identify pathological lesions in jars containing postoperative surgical specimens of common and important cardiothoracic surgical conditions.
- 8) Examine various radiological and echocardiographic features of cardiothoracic surgical diseases.
- 9) Comment on various radiological and echocardiographic features of cardiothoracic diseases.
- 10) Identify cardiothoracic surgical instruments and link between these instruments and surgical operations.
- 11) Apply the principles of sterile techniques and infection control guidelines.
- 12) Assess first aid measures and initial therapy for injured and acutely ill cardiothoracic surgical patients.
- 13) Perform first aid measures and initial therapy for injured and acutely ill cardiothoracic surgical patients.
- 14) Demonstrate how to perform basic technical procedures such as Basic Life Support (BLS), Advanced Life Support (ALS), airway management and oxygenation (mask ventilation and endotracheal intubation) and insertion of IV lines.
- 15) Perform all cardiothoracic surgical maneuvers.

4. GENERAL AND TRANSFERABLE SKILLS

- 1) Adopt ethical practices in dealing with patients, colleagues, subordinates, superiors and health care workers.
- 2) Develop communication skills to interact with patients, relatives, colleagues and paramedical staff.
- 3) Communicate effectively with patients and their families.
- 4) Communicate effectively with colleagues, paramedical staff and other health care providers and work cooperatively in a team.
- 5) Write patients' records and present them in a proper way.
- 6) Establish professional relations with patients, their families and the community.
- 7) Conduct reliable and responsible behaviors.
- 8) Respect patients' will, privacy and dignity.
- 9) Discuss professional errors in an honest way.
- 10) Permit cordial interpersonal relations.
- 11) Perform a team.
- 12) Learn to be a leader when the need arises.
- 13) Learn to order investigations and prescribe drugs rationally.
- 14) Be aware of ethical issues in human and animal research.

III. COURSE CONTENT

The areas of practice in cardiothoracic surgery are:

- Critical Care and Postoperative Management
- Cardiopulmonary Bypass, Myocardial Protection and Circulatory Support
- Ischemic Heart Disease
- Heart Valve Disease
- Aorto-vascular Disease
- Intrathoracic Transplantation and Surgery for Heart Failure
- Congenital Heart Disease
- Cardiothoracic Trauma
- Thoracic Surgery – General
- Neoplasms of the Lung
- Disorders of the Pleura
- Disorders of the Chest Wall
- Disorders of the Diaphragm
- Emphysema and Bullae
- Disorders of the Pericardium
- Disorders of the Mediastinum
- Disorders of the Airway
- Benign Esophageal Disease
- Malignant Esophageal Disease

The specific requirements of each of these areas of practice will be explained in depth in each topic within the syllabus. Included here are the key topics only.

Key Topics

1. Critical Care and Postoperative Management

- a. The management of critically ill cardiothoracic surgical patients in the pre and post operative periods

2. Cardiopulmonary Bypass, Myocardial Protection and Circulatory Support

- a. The management of a patient undergoing cardiopulmonary bypass
- b. The management of myocardial protection during cardiac surgery
- c. The management of a patient requiring circulatory support

3. Ischemic Heart Disease

- a. The assessment and management of patients with coronary heart disease, including elective and emergency presentations.
- b. Competence in both primary and secondary procedures, and where appropriate to include off-pump and on-pump strategies and arterial revascularization.

- c. The preliminary assessment and initial management of patients with complications of myocardial infarction, including mitral regurgitation, ventricular aneurysm and septal defects. To include operative management in appropriate situations.

4. Congenital Heart Disease

- a. The assessment and management of adults and children with congenital heart disease.
- b. Competence in the operative management of common uncomplicated congenital conditions (e.g. PDA, atrial and ventricular septal defects, coarctation, shunts and PA banding)
- c. Exposure to and experience in more complex operative procedures (e.g. valve surgery, Tetralogy of Fallot, pulmonary atresia, Fontan procedures, extra cardiac conduits, AV canal defects.)

5. Heart Valve Disease

- a. The assessment and management of patients with valvular heart disease; including both isolated and combined aortic and mitral valve disease.
- b. The assessment and management of patients with combined coronary and valvular heart disease, including operative management.

6. Surgery for Heart Failure and Intrathoracic Transplantation

- a. The assessment and management of a patient with heart failure including the selection criteria for various treatment options
- b. Operative management of heart failure including transplantation, revascularization, ventricular reverse remodeling and mitral valve surgery

7. Aortovascular Disease

- a. The preliminary assessment and initial management of patients with acute dissection of the ascending aorta. To include operative management in appropriate situations.

8. Cardiothoracic Trauma

- a. The assessment and management of patients with minor and major cardiothoracic trauma. To include operative management in appropriate situations.

9. General Management of a Patient Undergoing Thoracic Surgery

- a. Patient selection and determination of suitability for major thoracic surgery and the pre and postoperative management of a thoracic surgical patient.
- b. The assessment and management of a patient by bronchoscopy including foreign body retrieval
- c. The assessment and management of a patient by mediastinal exploration

- d. Competence in performing appropriate thoracic incisions

10. Neoplasms of the Lung

- a. The assessment and management of lung cancer, including the scientific basis of staging systems and techniques used in the determination of stage and fitness for surgery
- b. An understanding of the role of surgical treatment in the multidisciplinary management of lung cancer and other intrathoracic malignant diseases, including an appreciation of the principles of other treatment modalities and their outcomes

11. Disorders of the Pleura

- a. The assessment and management of patients with pleural disease; including pneumothorax and empyema, and including both VATS and open strategies

12. Disorders of the Chest Wall

- a. The assessment and management of patients with chest wall abnormalities, infections and tumors

13. Disorders of the Diaphragm

- a. The assessment and management of patients disorders of the diaphragm, including trauma to the diaphragm

14. Emphysema and Bullae

- a. The assessment and management of patients with emphysematous and bullous lung disease; including surgical management if appropriate and utilising both VATS and open strategies.
- b. Full competence in operative management of complex cases, including lung reduction surgery, to be developed in the post CCT period

15. Disorders of the Pericardium

- a. The assessment and management of patients with disorders of the pericardium and pericardial cavity; including surgical management if appropriate and utilising both VATS and open strategies

16. Disorders of the Mediastinum

- a. The assessment and management of patients with mediastinal tumors and masses; including surgical management if appropriate and utilising both VATS and open strategies

17. Disorders of the Airway

- a. The assessment and management of patients with disorders of the major airways. Including operative management in suitable cases.
- b. Full competence in operative management of complex cases, including tracheal resection, to be developed in the post CCT period

18. Disorders of the Esophagus

- a. The assessment and management of a patient with benign and malignant esophageal disease including reflux disorders

- b. Operative management of benign and malignant esophageal disease in suitable situations

IV. TEACHING AND LEARNING METHODS

- Lectures
- Textbooks
- Internet
- Journal clubs
- Attendance of departmental meetings and ward rounds
- Attendance of the cardiothoracic outpatient clinic, intensive care and ward and managing patients under supervision including the acute admissions
- Preparation of operating lists
- Assistance in the operating room and performance of surgery under supervision

V. ASSESSMENT AND EVALUATION

TOOLS OF ASSESSMENT

- Attendance (75% attendance at least)
- Log book signed from course coordinator and head of the department
- Self-assessment at weekly clinical meetings and rounds
- MCQ examination during the course
- Final written, oral and clinical examination

ASSESSMENT SCHEDULE

- Follow up assessment during the course
- Final examination at April and November

VI. LIST OF TEXTBOOKS AND JOURNALS TO BE USED OR CONSULTED

Cardiac and Thoracic Textbooks

- Cohn LH, *Cardiac Surgery in the Adult, Third Edition*, New York, McGraw-Hill, 2008.
- Yuh DD, Vricella LA, Baumgartner WA, *The Johns Hopkins Manual of Cardiothoracic Surgery*, New York, McGraw-Hill, 2007.
- Mery C, Turek J (eds), [*TSRA Review of Cardiothoracic Surgery*](#), 2011.
- Nguyen T, Loor G (eds), [*TSRA Clinical Scenarios of Cardiothoracic Surgery*](#), 2013.
- Shields TW, LoCicero J, Reed CE, Feins RH (eds), *General Thoracic Surgery, Seventh Edition*, Lippincott, Williams & Wilkins, 2009.
- Patterson GA, Pearson FG, Cooper JD, Deslauriers J, Rice TW, Luketich JD, Lerut AEM, *Pearson's Thoracic and Esophageal Surgery, Third Edition*, Elsevier, 2008.
- Ohri S, Moorjani N, Tang A, *Key Topics in Cardiac Surgery*, Hamtun Publishing, UK, 2013.
- Moorjani N, Viola N, Ohri SK, *Key Questions in Cardiac Surgery*, tfm Publishing, UK, 2011.
- Ferguson MK (ed), *Difficult Decisions in Thoracic Surgery: An Evidence Based Approach, Second Edition*, London, Springer-Verlag, 2011.
- Chikwe J, Cooke DT, Weiss A, *Oxford Specialist Handbook of Cardiothoracic Surgery*, Oxford University Press, 2013
- Ferguson MK (ed), *Thoracic Surgery Atlas*, Elsevier, 2007.
- Mavroudis C, *Pediatric Cardiac Surgery, Third Edition*, New York, Mosby, 2003.
- Kouchoukos N, Blackstone E, Doty D, Hanley F, Karp R, *Cardiac Surgery: Kirklin/Barratt-Boyes, Third Edition*, Philadelphia, Elsevier, 2003.
- Mountain CF, Libshitz HI, Hermes KE, *Lung Cancer: A Handbook for Staging, Imaging, and Lymph Node Classification*, Houston, TX, Mountain and Libshitz, 2003.

Cardiac and Thoracic Journals

[*The Annals of Thoracic Surgery*](#) (ATS), The Society of Thoracic Surgeons, The Southern Thoracic Surgical Association, Elsevier.

[*The Journal of Thoracic and Cardiovascular Surgery*](#) (JTCVS), The American Association for Thoracic Surgery, Mosby.

[*The European Journal of Cardio-Thoracic Surgery*](#) (EJCTS), European Association for Cardio-Thoracic Surgery, Elsevier.

[*Seminars in Thoracic and Cardiovascular Surgery*](#) (STCS), American Association for Thoracic Surgery, Elsevier.

[*Circulation*](#), American Heart Association, Lippincott Williams & Wilkins.

[*Journal of the American College of Cardiology*](#) (JACC).

[*Journal of Cardiothoracic and Vascular Anesthesia*](#), (JCVA) European Association of Cardiothoracic Anesthesiologists, Elsevier.

[*European Heart Journal*](#), European Society of Cardiology, Oxford University Press.

[*Thoracic Surgery Clinics*](#) (TSC), Elsevier