
Al- Azhar University
Faculty of Medicine
Department of
Chest diseases



جامعة الأزهر
كلية الطب (بنين)
قسم الأمراض الصدرية

مقرر

الأمراض الصدرية

لطلبة الدكتوراة

COURSE of

Chest diseases

For Doctorate Degree

2013-2014

Course Specification for Doctorate Degree in chest diseases

- **University: AL-AZHAR**
- **Faculty(s): Faculty of Medicine ,Cairo, Course Specifications Programme (s) on which the course is given**
- **Major or Minor element of programmes**
- **Department offering the programmes: chest department**
- **Department offering the course: Chest department**
- **Academic year / Level : 2013-2014**
- **Date of specification approval**

A-Basic Information

- **Title : Course Specification for Doctorate Degree in chest diseases**
- **Code :07-700-ches-Doc**
- **Credit Hours: 6 hours/ week**
- **Total hours/ week 10 hours dividved as follow;**
 - Lecture ;2 hours/ week**
 - Tutorial : 2 hours/ week**
 - Practical: 6hours/ week**

B- Professional Information

- 1- **Course aims**
- 2- **Intended learning outcomes (ILOs)**
- 3- **Content**

1- Course aims

- 1) **Develop a high level of knowledge and understanding of respiratory disease**
- 2) **Develop skills in the assessment of respiratory patients**
- 3) **Develop skills in managing patients with respiratory disease**
- 4) **Highlight the importance of preventative medicine and community services**
- 5) **Develop understanding of service provision**
- 6) **Develop effective communication skills**
- 7) **Develop teaching skills**
- 8) **Develop good critical appraisal skills**
- 9) **Develop research skills**
- 10) **Develop appropriate attitudes in a multicultural society**
- 11) **Develop problem-solving skills.**

2. Intended learning outcomes (ILOs)

- A. Knowledge and understanding**
- B. Intellectual skill**
- C. Professional and practical Skills**
- D. General and transferable skills**

A. Knowledge and understanding

At the end of the course of Chest-diseases and Tuberculosis, the student shall be able to:

- a.1 - understand aetiology, epidemiology, pathophysiology, genetics, diagnosis, clinical features, investigations and management of respiratory disease**
- a.2 - understand topics closely related to respiratory medicine e.g. chest radiology, microbiology, allergy, immunology, chest physiotherapy**
- a.3 - understand the role of Preventative medicine and public health**
- a.4 - Understand of Importance of environment and occupation in respiratory disease**
- a.5 - Understand global view of respiratory medicine**
- a.6- Demonstrate detailed knowledge of pulmonary as well as extra pulmonary tuberculosis and to offer a comprehensive plan of management (Including National TB control programme and DOTS**
- a.7- Recognize Rights of patients to play a part in the decision-making process of their own management**
- a.8- Recognize the understanding of basic facts , theories, of the chest and related subjects/ fields**
- a.9- Understand of quality standards of the practice**
- a.10- Understand of Importance of environment and occupation**

B. Intellectual skill

- b.1- Synthesize knowledge relating to respiratory disorders and diseases and critically evaluate its impact and effectiveness upon the treatment and management of patients, their family and careers.**
- b.2- Interpretation of the laboratory data including sputum examination - Gram's stain, AFB, cytology including malignant cells**
- b.3- Interpretation of the pulmonary function studies, ECG, , skin tests, blood gas analysis, and other investigations**
- b.4- Interpretation of chest X-ray, CT scan**
- b.5- Conduct a scientific research**
- b.6- Take professional decisions in wide range of professional situations**
- b.7- Formulate a differential diagnosis**
- b.8- Utilize skills of critical reflection and problem solving to interpret data and evidence to reach informed diagnosis**
- b.9- Critically evaluate the medical literature**
- b.10- Solve the majority of problems in the chest according to the available data (complete or incomplete)**
- b.11- Conduct research studies that add to the existing chest knowledge**
- b.12- Publish scientific articles/papers (in indexed journals)**
- b.13- Take decisions in various professional situations (including dilemmas & controversial)**
- b.13- Take decisions in various professional situations (including dilemmas & controversial)**
- b.14- Plan and implement (or supervise implementation of) enhancement & Improvement approaches to practice**

D. Professional and practical Skills

- c.1- Clinical history taking and physical examination ability to analyze symptomatology and physical signs; interpret their significance and arrive at a diagnosis; case-sheet writing and case presentation**
- c.2- Demonstrate the use of inhalers, a nebulizer and oxygen equipment**
- c.3- Perform and demonstrate spirometry**
- c.4- Perform and demonstrate ABG**
- c.5- Observation of bronchoscopic procedures.**
- c.6- Aspiration of pleural**
- c.7- Educate patients with regards to their diagnosis, epidemiology of their condition, investigations and management, and give appropriate advice**
- c.8- Write and appraise reports**

E. General and transferable skills

- d.1- Communicate effectively using all methods**
- d.2- Use information technology to improve his/her professional practice**
- d.3- Teach and evaluate others**
- d.4- Perform self appraisal & seek continuous learning**
- d.5- Work as team leader as well as a member in larger teams**
- d.6- Manage scientific meetings and appropriately utilize time**
- d.7- Work autonomously , at an advanced level and identify the need to support ,guidance, knowledge and skill development**

d.8- Gather relevant data and information from a range of sources

3. Content

Topic	no of Hours	Lecture	Tutorial/practical
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Part (A) SCIENTIFIC BASIS OF LUNG FUNCTION IN HEALTH AND DISEASE (5%)

Section One. Architecture for Normal Lung Function

- . Functional Design of the Human Lung for Gas Exchange
- . The Respiratory Muscles
- . The Genetic, Molecular, and Cellular Basis of Lung Development
- . Development and Growth of the Lung
- . Cellular and Molecular Mechanisms Regulating Airway Smooth Muscle

Physiology and Pharmacology

- . Pulmonary Surfactant System and Alveolar Homeostasis
- . Transport Function of Airway Epithelia and Submucosal Glands

Section Two. Physiological Principles of Normal Lung Function

- . Pulmonary Mechanics
- . Control of Ventilation
- . Ventilation, Pulmonary Blood Flow, and Ventilation-Perfusion Relationships
- . Diffusion, Chemical Reactions, and Diffusing Capacity
- . Blood-Gas Transport
- . Acid-Base Balance

Section Three. The Lungs in Different Physiological States

- . Exercise, Integration, and Adaptation
- . Breathing in Exercise
- . The Lungs in Pregnancy
- . Aging of the Respiratory System

Section Four. Lung Immunology

- . Pulmonary Defense Mechanisms against Infections
- . Lymphocyte- and Macrophage-Mediated Inflammation in the Lung
- . Mast Cells and Eosinophils
- . Antibody-Mediated Lung Defenses and Humoral Immunodeficiency

Section Five. Lung Injury and Repair

- . Cytokines and Chemokines in Lung Inflammation and Injury
- . Leukocyte Accumulation in Pulmonary Disease

- . Oxidative and Nitrosative Lung Injury
- . The Pathogenesis of Pulmonary Fibrosis

Part (B) SYMPTOMS AND SIGNS OF RESPIRATORY DISEASE (5%)

Section Six. Clinical Approach to the Patient

- . Approach to the Patient with Respiratory Symptoms
- . Skin Disease in Patients with Pulmonary Disease
- . Pulmonary-Systemic Interactions

Section Seven. Diagnostic Procedures

- . Radiographic Evaluation of the Chest
- . Pulmonary Cytopathology
- . Interventional Radiology in the Thorax: Nonvascular and Vascular Applications
- . Scintigraphic Evaluation of Pulmonary Disease
- . Pulmonary Function Testing
- . Principles and Applications of Cardiopulmonary Exercise Testing
- . Bronchoscopy, Transthoracic Needle Aspiration, and Related Procedures
- . Thoracoscopy
- . Perioperative Respiratory Considerations
- . Evaluation of Impairment and Disability Due to Lung Disease

Part (C) OBSTRUCTIVE LUNG DISEASES (5%)

Section Eight. Chronic Obstructive Pulmonary Disease

- . Pathologic Features of Chronic Obstructive Pulmonary Disease: Diagnostic Criteria and Differential Diagnosis
- . Chronic Obstructive Pulmonary Disease: Epidemiology, Pathophysiology, and Pathogenesis
- . Chronic Obstructive Pulmonary Disease: Clinical Course and Management
- . Cigarette Smoking and Disease
- . Rehabilitation in Chronic Obstructive Pulmonary Disease and Other Respiratory Disorders

Section Nine. Asthma

- . The Biology of Asthma
- . Asthma: Epidemiology
- . Aspirin- and Exercise-Induced Asthma
- . Asthma: Clinical Presentation and Management
- . Allergic Bronchopulmonary Aspergillosis (Mycosis)

Section Ten. Other Obstructive Disorders

- . Upper Airway Obstruction in Adults
- . Cystic Fibrosis
- . Bronchiolitis
- . Bullous Disease of the Lung

Part (D) OCCUPATIONAL AND ENVIRONMENTAL DISORDERS (5%)**Section Eleven. Occupational Disorders**

- . Occupational Lung Disorders: General Principles and Approaches
- . Asbestos-Related Lung Disease
- . Chronic Beryllium Disease and Hard-Metal Lung Diseases
- . Coal Workers' Lung Diseases and Silicosis
- . Occupational Asthma, Byssinosis, and Industrial Bronchitis
- . Acute and Chronic Responses to Toxic Inhalations

Section Twelve. Environmental Disorders

- . Indoor and Outdoor Air Pollution
- . High-Altitude Physiology and Clinical Disorders
- . Diving Injuries and Air Embolism
- . Thermal Lung Injury and Acute Smoke Inhalation

Part (E) DRUG-INDUCED LUNG DISEASES (5%)

- . Pulmonary Toxicity Associated with Chemotherapeutic Agents
- . Drug-Induced Lung Disease Due to Nonchemotherapeutic Agents

Part (F) INTERSTITIAL AND INFLAMMATORY LUNG DISEASES (5%)**Section Thirteen. Immunologic and Interstitial Diseases**

- . Interstitial Lung Disease: A Clinical Overview and General Approach
- . Systemic Sarcoidosis
- . Idiopathic Pulmonary Fibrosis
- . Hypersensitivity Pneumonitis
- . Radiation Pneumonitis
- . Pulmonary Manifestations of the Collagen Vascular Diseases
- . The Eosinophilic Pneumonias

Section Fourteen. Depositional and Infiltrative Disorders

- . Depositional Diseases of the Lungs

- . Pulmonary Langerhan's-Cell Histiocytosis
- . Pulmonary Lymphangiomyomatosis
- . The Lungs in Patients with Inborn Errors of Metabolism

Part (G) ALVEOLAR DISEASES (5%)

- . Alveolar Hemorrhage Syndromes
- . Mechanisms of Aspiration Disorders
- . Pulmonary Alveolar Proteinosis

Part (H) DISORDERS OF THE PULMONARY CIRCULATION (5%)

- . The Pulmonary Circulation
- . Pulmonary Hypertension and Cor Pulmonale
- . Pulmonary Thromboembolic Disease
- . Pulmonary Vasculitis
- . Pulmonary Arteriovenous Malformations

Part (I) DISORDERS OF THE PLEURAL SPACE (5%)

- . Non-Malignant Pleural Effusions
- . Malignant Pleural Effusions
- . Pneumothorax
- . Malignant Mesothelioma and Other Primary Pleural Tumors

Part (J) DISEASES OF THE MEDIASTINUM (5%)

- . Nonneoplastic Disorders of the Mediastinum
- . Congenital Cysts of the Mediastinum: Bronchopulmonary Foregut Anomalies
- . Acquired Lesions of the Mediastinum: Benign and Malignant

Part (K) DISORDERS OF THE CHESTWALL, DIAPHRAGM, AND SPINE (5%)

- . Nonmuscular Diseases of the Chest Wall
- . Effects of Neuromuscular Diseases on Ventilation
- . Management of Neuromuscular Respiratory Muscle

Part (L) SLEEP AND SLEEP DISORDERS (5%)

- . The Stages of Sleep
- . Changes in the Cardiorespiratory System During Sleep

- . Sleep Apnea Syndromes
- . Differential Diagnosis and Evaluation of Sleepiness

Part (M) SURGICAL ASPECTS OF PULMONARY MEDICINE (5%)

- . Perioperative Care of the Patient Undergoing Lung Resection
- . Thoracic Trauma
- . Lung Transplantation

Part (N) NEOPLASMS OF THE LUNGS (5%)

Section Fifteen. Cancer of the Lungs

- . Genetic and Molecular Changes of Human Lung Cancer
- . The Solitary Pulmonary Nodule: A Systematic Approach
- . The Pathology of Non–Small Cell Lung Carcinoma
- . Treatment of Non–Small-Cell Lung Cancer: Surgical
- . Treatment of Non-Small-Cell Lung Cancer: Chemotherapy
- . Treatment of Non–Small-Cell Lung Cancer: Radiation Therapy
- . Small Cell Lung Cancer: Diagnosis, Treatment, and Natural History
- . Primary Lung Tumors Other Than Bronchogenic Carcinoma: Benign and Malignant
- . Extrapulmonary Syndromes Associated with Lung Tumors
- . Pulmonary Metastases

Section Sixteen. Lymphoproliferative Disorders

- . Lymphoproliferative and Hematologic Diseases Involving the Lung and Pleura

Part (O) INFECTIOUS DISEASES OF THE LUNGS (5%)

Section Seventeen. General Concepts

- . Pulmonary Clearance of Infectious Agents
- . Approach to the Patient with Pulmonary Infection
- . The Radiology of Pulmonary Infection
- . The Pathology of Pulmonary Infection
- . Principles of Antibiotic Use and the Selection of Empiric Therapy for Pneumonia
- . Vaccination against Pulmonary Infections
- . Microbial Virulence Factors in Pulmonary Infections

Section Eighteen. Common Syndromes in Pulmonary Infectious Diseases

- . Infections of the Upper Respiratory Tract
- . Acute Bronchitis and Community-Acquired Pneumonia

- . Acute Exacerbations of Chronic Obstructive Pulmonary Disease
- . Pneumonia in Childhood
- . Aspiration, Empyema, Lung Abscesses, and Anaerobic Infections
- . Mediastinitis
- . Microbiology and Infection in Cystic Fibrosis
- . Bronchiectasis

Section Nineteen. Pulmonary Infections in Special Hosts

- . Pneumonia in Surgery and Trauma
- . Pulmonary Infection in Immunocompromised Hosts
- . Human Immunodeficiency Virus and Pulmonary Infections

Section Twenty. Major Pathogens in Pulmonary Infections

- . Pneumonia Caused by Gram-Positive Bacteria
- . Nosocomial Pneumonia
- . Aspergillus, Candida, and Other Opportunistic Mold Infections of the Lung
- . Cryptococcosis and the Endemic Mycoses
- . Pneumocystis Pneumonia
- . Viral Infections of the Lung and Respiratory Tract
- . Protozoan Infections of the Thorax
- . Helminthic Diseases of the Lungs
- . Zoonotic and Other Unusual Bacterial Pneumonias

Section Twenty-One. Mycobacterial Infections

- . The Epidemiology, Prevention, and Control of Tuberculosis in the United States
- . The Microbiology, Virulence, and Immunology of Mycobacteria
- . Clinical Presentation and Treatment of Tuberculosis
- . Mycobacterial Infections and HIV Infection
- . Diseases due to Non-Tuberculous Mycobacteria

Part (P) ACUTE RESPIRATORY FAILURE (5%)

Section Twenty-Two. Lung Failure

- . Respiratory Failure: An Overview
- . Acute Respiratory Distress Syndrome: Pathogenesis
- . Acute Lung Injury and the Acute Respiratory Distress Syndrome: Clinical Features, Management, and Outcomes
- . Sepsis, Systemic Inflammatory Response Syndrome, and Multiple Organ Dysfunction Syndrome
- . Acute Respiratory Failure in the Surgical Patient

Section Twenty-Three. Respiratory Pump Failure

. Pump Failure: The Pathogenesis of Hypercapnic Respiratory Failure in Patients with Lung and Chest Wall Disease

Section Twenty-Four. Management and Therapeutic Interventions

- . Oxygen Therapy and Pulmonary Oxygen Toxicity
- . Pulmonary Pharmacotherapy
- . Intubation and Upper Airway Management
- . Hemodynamic and Respiratory Monitoring in Acute Respiratory Failure
- . Principles of Mechanical Ventilation
- . Nutrition in Acute Respiratory Failure
- . Treatment of Agitation in the Intensive Care Unit
- . Decision Making in the Intensive Care Unit
- . Ethics in the Intensive Care Unit

Prevention and Control(10%)

Prevention of lung diseases and patient education. Smoking. Patient education.

Practical Procedures and Acquired Skills(10%)

Ward rounds, „Practiced procedures and acquired skills for doctorate degree: Thoracentesis. Arterial blood gases sampling and monitoring. Interpretation of pulmonary function tests. Inhalation therapy. Oxygen therapy. Interpretation of sleep study. Interpretation of plain chest X-ray, CT scan and MRI of the chest. Ultrasound examination of the chest. Interpretation of ECG. Monitoring in the ICU. Sputum induction and collection of other respiratory specimens. Fiberoptic bronchoscopy and the broncho-fiberoptic procedures. . Insertion and care of intercostals tubes of the chest. Pleural biopsy. Principles of medical thoracoscopy. . Smoking cessation protocols.

4- Teaching and learning methods

1. Illustrated Lectures
2. Seminars
3. Clinical Rounds
4. Tutorials
5. Practical clinical techniques
6. Weekly conferences and professors guided rounds
7. Assignment

5-Student assessment methods

5.1 Written exam to assess knowledge and skills

5.2 Clinical exam to asses practical and professional skills**5.3 Oral exam to assess general and transferable skills****Weighting of assessments****Final-term examination 100%**

- Oral examination. 25%
- Practical examination 25%
- Written examination 50 %
- Total 100%

I. Examination description:

A. Log book: (attached at the end) must be completed during the year and every student should have:

1. Attend at least 75% of the clinical classes.
2. Actively participated in discussions in tutorial classes.
3. Shared in the scientific day and give an accepted presentation. ?

B. Examination: ?

Examination	Description	Marks
Final Exam	A 3 hours written 2 papers composed of short essay and different types of MCQ, matching, complete, & data interpretations etc, and case commentary paper.	50%
clinical exam	OSCE ? Perform the clinical exam of one long case 2 short cases	25%
Oral exam	The student will examine in front of 2 different examiners (2 settings).	25%
Total		100%

List of references

- 6.1- Course notes :- paper and electronic
- 6.2- Essential books (text books)...i.e Fishman pulmonary diseases and disorders (4th edition)
- 6.3- Periodicals, Web sites etc, Chest journal, Thorax journal

- **Course specification for dectorate in chest diseases, Al Azhar university, faculty of medicine for girls and Cairo university faculty of medicine**

Teaching and learning facilities:

These include:

- I. **Lecture halls:** In the in the main library building of the El- Hussein Hospital., equipped with writing movable white board?, overhead and slide projectors and data show projector?.
- II. **Clinical rounds halls (in the El- Hussein and sayed galal Hospitals):** they are equipped with facilities to perform the required work.
- III. **Tutorial classes:** Held in the lecture halls?.
- IV. **Library:** In library building of the El- El- Hussein Hospital.

Course coordinators **prof. Ismael Abd Elmonem Attia**
 prof. Ahmad Aly Abonagla
 Prof. Salem Mohammad Abo Sabea

Assistant coordinators: **Assistant Prof. Ayman Amin**
 Dr. Ahmad El shahat kabil

Head of Department: **prof. Ibrahim Abd Elfattah**

Date: //