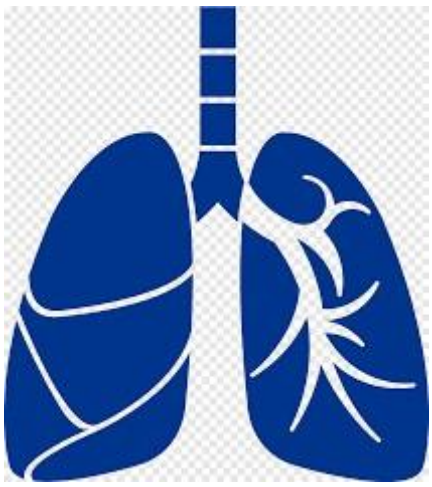
2023

MD PULMOOLGY CURRICUAM RAWALPINDI MEDICAL UNIVERSITY, RAWALPINDI



Deans Office

Medicine & Allied, RMU

GOALS AND OBJECTIVES

The overall goal of the MD Pulmonology residency program is to train highly qualified pulmonologists who will contribute substantially to this field through exemplary patient care, original research, and teaching.

The trainee will achieve this goal through the following objectives:

- Become proficient in the clinical diagnosis and medical treatment of acute and chronic respiratory diseases including life-threatening illnesses
- Become proficient in the selection, performance, and evaluation of procedures necessary for the morphologic and physiologic assessment of pulmonary diseases
- Develop a comprehensive knowledge of the pathophysiology of adult respiratory disorders through self-study and formal workshops, lectures, and seminars offered as part of the training program.
- Acquire effective teaching and communicating skills in Pulmonology
- Understand the psychosocial aspects of respiratory diseases, develop skills in counseling, and become knowledgeable of the ethical issues related to respiratory diseases
- Develop the administrative skills necessary to operate a Pulmonology facility including knowledge of staffing needs, unit management, program development, and grant proposals

- Acquire the necessary research skills to design, conduct, evaluate, and prepare for publishing a clinical or laboratory based research project through experience, mentoring, and formal courses in research design, biostatistics and epidemiology.

SCOPE

At the end of three years training, certificate will be issued to make them eligible for appearing in FCPS in Pulmonology. After passing FCPS Pulmonology they can practice as Consultant Pulmonologist, can acquire academic posts in both public and private sector. They can pursue research and even higher education in a particular field of Pulmonology.

ADMINISTRATIVE SETUP & TRAINING HOSPITAL

Dr. Zaid Umar

Assistant Professor Pulmonology,
Department of Medicine

Pulmonology Department, Rawalpindi Medical University, Rawalpindi at three affiliated Hospitals.

DURATION AND OUTLINE

MD Pulmonary Medicine Residency program is a five-year training program. This includes initial two years training in Internal Medicine.

During last three years, there are six months' of rotations. The mandatory rotations are Intensive care unit, cardiology, cardiothoracic surgery, and oncology. During these rotations, candidate will be under constant supervision of senior faculty.

ELIGIBILITY

- MBBS or equivalent degree from an institution recognized by PMDC with minimum score of 55 per cent and above
- One year internship with six months in Medicine and Allied and six months in Surgery and Allied disciplines
- MDCAT examination and allocation per Central Induction Government of Punjab.

SYLLABUS

A general outline is given below.

PULMONARY CONDITIONS

Acute and chronic bronchitis, Bronchial asthma, COPD, Smoking cessation, Pneumonia, Lung abscess, Pleural effusions including empyema. Lung atelectasis, Bronchiectasis, Cor pulmonale, Respiratory failure including non-invasive and invasive ventilation, Pneumothorax, Bronchogenic carcinomas, Pulmonary thromboembolism, Pulmonary hypertension, Acute respiratory distress syndrome (ARDS), Sarcoidosis, Drug induced lung disease, Interstitial lung disease, Hypersensitivity pneumonitis, Occupational lung disease, Diseases of the mediastinum, chest wall and diaphragm.

Pulmonary manifestations of systemic disease like connective tissue diseases, Eosinophilic lung diseases, Parasitic and fungal lung diseases, Pulmonary Nocardiosis and Actinomycosis, Pulmonary infections in the compromised host Pulmonary tuberculosis: history, predisposing factors, types, clinical features, diagnosis, management, treatment and complications, TB in special situations like diabetes, pregnancy, liver disease, Extra-pulmonary tuberculosis of lymph nodes, bones, joints, skin, urogenital system, CNS, ENT, pericardium, meninges etc, Mutidrug-resistant (MDR) and Extensively drug- resistant tuberculosis (XDR Tuberculosis), Disseminated tuberculosis, Atypical mycobacterial infection of the lung, Chest Radiology, Pulmonary function testing, Radiotherapy and physiotherapy of the chest, Sleep related breathing disorders and Thoracic trauma.

NON PULMONARY CONDITIONS

Diabetes mellitus, Hypertension, Congestive Cardiac Failure, Valvular heart disease, Ischemic heart disease.

Diseases of the liver, Acid peptic disease, Renal failure, Collagen vascular disease, Common infectious diseases like Malaria, Typhoid, Meningitis etc, Anaemias, Leukemias and Lymphomas.

WHAT IS EXPECTED FROM AN PULMONOLOGIST (MD PULMONOLOGY) AT THE END OF TRAINING

CLINICAL EVALUATION OF PULMONOLOGY PATIENTS

Objective evidence should be obtained during the two-year period of Pulmonology training of candidates' ability to conduct the following:

- An expert and focused respiratory (thoracic) evaluation. This would include the influence of Pulmonology disease on other organ systems and of systemic diseases upon the lungs.

- The ability of candidates to act sensitively and to practice high ethical standards in the handling of difficult patient problems, for example, in the Respiratory ICU and terminal illness.

- The ability to communicate effectively with, and educate, patients and colleagues.

- Evidence should be obtained that the candidates can provide a high quality of medical care, including the selection and performance of appropriate tests and investigations.

BASIC SCIENCE REQUIREMENTS

- Respiratory and related cardiac physiology and anatomy
- Pathology of lung disease
- Respiratory pharmacology
- Infectious diseases as related to the respiratory system
- Immunology of the normal and diseased lung
- Epidemiology, research techniques and statistics

CRITICAL CARE

- The principles of critical care as related to Pulmonology

Evidence will be required of adequate exposure and technical ability as mastered by the candidate and witnessed by a registered Pulmonologist or Critical Care specialist over the two-year period of training in Pulmonology.

ALLERGY

- Diagnostic techniques in allergy
- Clinical and laboratory competence for diagnosing and treating allergic disease of the upper and lower respiratory tract

PROGRAMMES FOR COMMUNITY-RELATED DISEASES

Experience with diagnosis and treatment of community-related diseases at hospital and

community level will be required. This would include participation in national and regional SATS and Government programmes for diseases including:

- Tuberculosis, asthma, chronic obstructive pulmonary disease, community- acquired pneumonia and HIV-related lung disease, lung cancer

MANAGEMENT OF RARE DISEASES

- Cystic fibrosis, diffuse parenchymal lung diseases

OCCUPATIONAL AND ENVIRONMENTAL HEALTH

- Evaluation of workers and the workplace
- Preventative measures for respiratory hazards
- Detection and treatment of occupational lung disease
- Legal and legislatory principles
- Principles of compensation

DIAGNOSTIC PULMONARY TECHNIQUES

Objective evidence will be obtained of candidates' ability to conduct and interpret the following techniques:

- Flow-volume curves
- Body plethysmography evaluation

- Blood gas determinations
- Measurement of diffusion
- Exercise studies
- Evaluation of respiratory musculature
- Determination of elastic recoil
- Bronchial and nasal provocation
- Polysomnography

INVASIVE PROCEDURES

- Intubation
- Insertion of drainage tubes
- Fibreoptic bronchoscopy (rigid bronchoscopy – optional)
- Needle aspiration
- Pleural and other biopsies
- Thoracoscopy (optional)

INTERPRETING IMAGING TECHNIQUES

- Including all radiological and CT imaging techniques
- Isotope evaluation of pulmonary ventilation and blood flow

RESEARCH REQUIREMENTS

- National and international presentations/publications

COLLABORATION OF DISCIPLINES FOR TRAINING OF PULMONOLOGISTS

Broadening the scope of training and experience of students in Pulmonology would require collaboration with the following specialties:Occupational health specialists

- Critical care specialists (including Anaesthesiology and Cardiology)
- ENT surgeons
- Radiology and isotope specialists
- Pathologists

COMPETENCIES FOR MD PUMONOLGY

Clinical skills/competencies required per year and expected levels are given below;

Key to competency levels in clinical skills:

1. Observer status
2. Assistant status
3. Performed under supervision
4. Performed independently

PROCEDURES	Third Year								
	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	Level	Cases	
Eliciting Pertinent History	4	30	4	30	4	30	4	30	120
Performing Physical Examination	4	30	4	30	4	30	4	30	120
Ordering appropriate Examination	3	30	4	30	4	30	4	30	120
Interperating the results of investigations	2	30	2	30	3	30	3	30	120
Deciding & implementing appropraiate treatment	2	30	2	30	3	30	3	30	120
Maintaining Followup	3	30	3	30	4	30	4	30	120
Pleural aspiration	2	10	3	10	4	10	4	10	40
Pleural Biopsy	2	5	2	5	3	5	3	5	20
Chest Tube Insertion	2	5	2	5	3	5	3	5	20
Bronchoscopy	2	10	2	10	2	10	2	10	40

PROCEDURES	Fourth Year								
	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	Level	Cases	
Patient Management									
Eliciting Pertinent History	4	30	4	30	4	30	4	30	120
Performing Physical Examination	4	30	4	30	4	30	4	30	120
Ordering appropriate Examination	4	30	4	30	4	30	4	30	120
Interperating the results of investigations	4	30	4	30	4	30	4	30	120
Deciding & implementing appropraiate treatment	4	30	4	30	4	30	4	30	120
Maintaining Followup	4	30	4	30	4	30	4	30	120
Pleural aspiration	4	10	4	10	4	10	4	10	40
Pleural Biopsy	4	5	4	5	4	5	4	5	20
Chest Tube Insertion	4	5	4	5	4	5	4	5	20
Bronchoscopy	2	10	2	10	2	10	2	10	40

PROCEDURES	Final Year								
	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total # of Cases
	Level	Cases	Level	Cases	Level	Cases	Level	Cases	
Patient Management									
Eliciting Pertinent History	4	30	4	30	4	30	4	30	120
Performing Physical Examination	4	30	4	30	4	30	4	30	120
Ordering appropriate Examination	4	30	4	30	4	30	4	30	120
Interperating the results of investigations	4	30	4	30	4	30	4	30	120
Deciding & implementing appropraiate treatment	4	30	4	30	4	30	4	30	120
Maintaining Followup	4	30	4	30	4	30	4	30	120
Pleural aspiration	4	10	4	10	4	10	4	10	40
Pleural Biopsy	4	5	4	5	4	5	4	5	20
Chest Tube Insertion	4	5	4	5	4	5	4	5	20
Bronchoscopy	2	10	2	10	3	10	3	10	40

TRAINING

MD Pulmonology training program focuses main pillars of training i.e., knowledge, skills and attitudes. Outcome based curricular format is to be followed that is blend of behavioral and cognitive philosophies of curriculum development.

A concise version of recommended list of learning outcomes is given below;

COGNITION

The learning outcomes will all be at the application level since that is the gold standard. Therefore, the candidate will be able to:

- Relate how body function gets altered in diseased states
- Request and justify investigations and plan management for medical disorders
- Assess new medical knowledge and apply it to their setting be up to date with all diagnostic modalities in the field of Pulmonology and have a comprehensive knowledge of their applications and interpretations
- Apply quality assurance procedures in their daily work.

SKILLS

WRITTEN COMMUNICATION SKILLS

The candidates will be able to:

- Correctly write updated medical records, which are clear, concise and accurate.
- Write clear management plans, discharge summaries and competent letters for outpatients after referral from a general practitioner.
- Demonstrate competence in academic writing

VERBAL COMMUNICATION SKILLS

The candidates will be able to:

- Establish professional relationships with patients and their relatives or caregivers in order to obtain a history, conduct a physical examination and provide appropriate management.
- Demonstrate usage of appropriate language in seminars, bedside sessions outpatients and other work situations.
- Demonstrate the ability to communicate clearly, considerately and sensitively with patients, relatives, other health professionals and the public.
- Demonstrate competence in presentation skills

EXAMINATION SKILLS

The candidates will be able to:

- Perform an accurate physical examination in medical and other complex health problems.
- Interpret physical signs after physical examination so as to formulate further management.

PATIENT MANAGEMENT SKILLS

The candidates will be able to:

- Interpret and integrate the history and examinations findings and arrive at an appropriate differential diagnosis and final diagnosis.
- Demonstrate competence in problem identification, analysis and management of the problem at hand by the use of appropriate resources, interpretation of lab results.
- apply the knowledge of the therapeutic interventions used in the field of cardiology for patient management
- Prioritize different problems within a time frame

SKILLS IN RESEARCH

The candidates will be able to:

- Use evidence based medicine and evidence based guidelines
- Conduct research individually by using appropriate research methodology and statistical methods.
- Correctly guide others in conducting research by advising about study designs, research methodology and statistical methods that are applicable.
- Interpret and use results of various research articles.

ATTITUDES

TOWARDS PATIENTS

The candidates will be able to:

- Establish a positive relationship with all patients in order to ease illness and suffering
- Facilitate the transfer of information important to the management and prevention of disease
- Demonstrate awareness of bio-psycho-social factors in the assessment and management of a patient
- Consistently show consideration of the interests of the patient and the community as paramount with these interests never subservient to one's own personal or professional interest.

TOWARDS SELF DEVELOPMENT

The candidate will be able to:

- Demonstrate, consistently, respect for every human being irrespective of ethnic background, culture, socioeconomic status and religion
- Deal with patients in a non-discriminatory and prejudice-free manner
- Deal with patients with honesty and compassion
- Demonstrate flexibility and willingness to adjust appropriately to changing circumstances

- Foster the habit and principle of self-education and reflection in order to constantly update and refresh knowledge and skills and as a commitment to continuing education.
- Recognize stress in self and others
- Deal with stress and support medical colleagues and allied health workers.
- Handle complaints including self-criticism or criticism by colleagues or patients
- Understand the importance of obtaining and valuing a second opinion.

TOWARDS SOCIETY

The candidate will be able to:

- Understand the social and governmental aspects of health care provision
- Offer professional services while keeping the cost effectiveness of individual forms of care
- Apply an understanding of hospital and community-based resources available for patients and care givers in under served areas.

ROTATIONS

Following rotations have to be done during MD Pulmonology training (3rd, 4th, and 5th year).

No	Rotation	Duration	Requirements
1	Cardiology	2 moths	● Conduct at least 20 OPDs ● Attend at least 16 day ward rounds with the teacher ● Be skilled in the interpretation of ECG, ETT, basic echo cardiography and coronary angiography ● Learn the diagnosis and management of common cardiac diseases
2	Thoracic Surgery	1 month	● Conduct 20 OPDs and follow up clinic ● Learn the pre - and postoperative techniques ● Learn diseases and indications for chest operations ● Attend at least 15 operations of the chest ● Manage complications
3	Radiology	1 month	The candidate would be skilled in the interpretation of chest X-ray, CT scan (computed tomography) of the chest, X-ray paranasal sinuses, barium swallow,

			barium meal, plain X-ray abdomen, IVP and ultrasound.
4	Oncology	2 weeks	The candidate will be able to learn to interpret the lung scans (perfusion and ventilation), bone, thyroid and liver. Pumonology related oncological issues management
5	ICU	2 months	The candidate will be able to learn to diagnose and treat the following conditions: - Respiratory failure, Shock, Arrhythmias, - Mechanical ventilation NIV
6	Research	As per MD Trainees requirements RMU	Completion of Thesis

TRAINING METHODOLOGIES

The objectives of the training may be achieved through different modes, some of which are listed below:

1. Graded responsibility in patient care e.g.
    a. Ward duties
    b. OPD duties
    c. Emergency duties
2. Morbidity/mortality review
3. Journal club
4. Seminars, conferences and lectures
5. Research projects

RESPONSIBILITIES & ROLES

MD Pulmonology Trainees should:

- Accept responsibility for their own learning and ensure that it is in accord with the relevant requirements;
- Investigate sources of information about the program and potential Supervisor, and play an informed role in the selection and appointment of the Supervisor;
- Seek reasonable infrastructure support from their institution and Supervisor, and use this support effectively;
- Ensure that they undertake training diligently;
- Work with their supervisors in writing the synopsis/ research proposal and submit the synopsis/ research proposal within six months of registration with the RTMC;
- Accept responsibility for the dissertation, and plan and execute the research within the time limits defined;
- Be responsible for arranging regular meetings with the supervisor to discuss any hindrances to progress and document progress etc. If the supervisor is not able/willing to meet with the student on a regular basis, the student must notify the College;
- Provide the supervisor with word-processed updated synopsis and thesis drafts that have been checked for spelling, grammar and typographical errors, prior to submission;

- Prior to submission of thesis, MD Trainee should ensure that the supervisor has all the raw data relevant to the thesis;
- Work/Process/Submit completed Synopsis, and Thesis according to RMU requirement.
- Follow the RMU complaint procedures if serious problems arise;
- Complete all requirements for sitting an examination;
- Fill all forms including feedback periodically as per requirements of DME RMU.

LOGGING

Logbook (Clinical, Rotational, and Research) filling and completion and mandatory for MD Pulmonology Trainees. Trainees are advised to fill entries and get these verified by respective Supervisors on daily basis. DME RMU will supervise and verify the same periodically.

RESEARCH (THESIS)

One of the training requirements to appear in MD Pulmonology final examination is Thesis. It has to be completed according to RMU policy.

ASSESMENT

Final MD Pulmonology examination will comprise following;

THEORY EXAMINATION

This is a written examination consisting of two papers.

Paper	Duration	Short Answer Questions	Multiple Choice Questions
1	3 hours	10	50
2	3 hours	10	50

CLINICAL EXAMINATION

Only those candidates who pass theory examination will be called for Final Clinical examination.

TOACS		As per RMU policy
Long Case		Each candidate will be allotted one long case and allowed 30 minutes for history taking and clinical examination. Candidates should take a careful history from the patient (or relative) and after a thorough physical examination identify the problems which the patient presents with. During the period a pair of examiners will observe the candidate. In this section the candidates will be assessed on the following areas: Interviewing skills: ● Introduces one self. Listens patiently and is polite with the patient. ● Is able to extract relevant information. Clinical examination skills: ● Takes informed consent

		● Uses correct clinical methods systematically (including appropriate exposure and re-draping). Case presentation/ discussion: ● Presents skillfully ● Gives correct findings ● Gives logical interpretations of findings and discusses differential diagnosis. ● Enumerates and justifies relevant investigations. ● Outlines and justifies treatment plan (including rehabilitation). ● Discusses prevention and prognosis. ● Has knowledge of recent advances relevant to the case. ● During case discussion the candidate may ask the examiners for laboratory investigations which shall be provided, if available. Even if they are not available and are relevant, candidates will receive credit for the suggestion.

4 Short Cases		● Candidates will be examined in at least four short cases for a total of 40 minutes jointly by a pair of examiners. Candidates will be given a specific task to perform on patients, one case at a time. ● During this part of the examination, the candidate will be assessed in clinical examination skills i.e., ● Takes informed consent. ● Uses correct clinical methods including appropriate exposure and re-draping. ● Examines systematically. Discussion: ● Gives correct findings. ● Gives logical interpretations of findings. ● Justifies diagnosis.