



**JOHANNESBURG  
ACADEMIC OFFICE**

# CMSA

The Colleges of Medicine of South Africa NPC

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**September 2018**

## THE COLLEGE OF PHYSICIANS OF SOUTH AFRICA

# R E G U L A T I O N S

## FOR ADMISSION TO THE EXAMINATION FOR THE POST-SPECIALISATION

## SUB-SPECIALTY CERTIFICATE

IN

## PULMONOLOGY

### Cert Pulmonology(SA)

#### **1.0 ELIGIBILITY TO TAKE THE EXAMINATION**

In order to be eligible to enter for this examination, the candidate:-

- 1.1 must comply with the requirements for registration as a medical practitioner, as prescribed by the Medical, Dental and Supplementary Health Services Act
- 1.2 must be registered as a specialist Physician with the HPCSA

#### **2.0 ADMISSION TO THE EXAMINATION**

(to be read in conjunction with the Instructions)

The following are the requirements for admission to the examination:

- 2.1 registration as a specialist Physician
- 2.2 certification of having completed at least eighteen months as a senior registrar in an accredited specialist department(s)/division(s)/unit(s) of pulmonology, registered and approved by the Health Professions Council of South Africa
- 2.3 submission of the prescribed portfolio, filled in up to date, and certified by the head(s) of the department(s)/division(s)/unit(s) in which the candidate trained that the candidate has completed all the requirements (at least up to 18 months) to be eligible to sit the examinations (Appendix D). The portfolio (an electronic/ scanned copy) must be submitted to the Examinations Office at the CMSA at the time of applying to sit the examination and will be forwarded to the convenor of the examination for verification prior to the examination. NOTE: The original (hard copy) completed logbook must also be brought the oral examination; this is a requirement for the viva to go ahead on the day of the examination
- 2.4 Completion of the research component of the Cert Pulmonology (SA). See section 1.12. of Appendix A, which outlines the minimal requirement for completion of the research component. Copies of relevant abstracts, papers, reports, supporting letters, and / or publications should be included in the logbook. Failure to do this may cause delays and could prevent the signing off of the logbook/portfolio, and hence admission to the exam

2.5 Training is valid for a period of three years from the date of completion in a numbered subspecialty training post. Candidates who do not successfully complete the subspecialty examination within the period must motivate with support from their HOD to the College of Physicians for a once off extension.

**3.0 SYLLABUS AND TRAINING**

An overall outline of the syllabus and training objectives are outlined in APPENDIX A whilst a detailed syllabus is outlined in APPENDIX B

**4.0 LOGBOOK and FORMAT AND CONDUCT OF THE EXAMINATION**

**Details regarding the examination are outlined in APPENDIX C. APPENDIX D** contains a logbook outlining the minimum of procedures and tests performed or witnessed to enter the examinations. The progress of the candidate must be monitored. The candidate will not be allowed to sit the examination unless there is satisfactory sign-on by the relevant Department and a minimum number of procedures and required competencies outlined in Appendix A and B have been met.

## APPENDIX A

### 1.0 TRAINING REQUIREMENTS IN ADULT PULMONOLOGY

- 1.1 This document provides an overview of the requirements for the standard of training required for persons wishing to register as adult pulmonologists. A detailed syllabus is outlined in Appendix B.
- 1.2 **The clinical evaluation of pulmonology patients:**  
Objective evidence should be obtained during the two year period of pulmonology training of candidate's ability to:
- Conduct an expert and focused respiratory (thoracic) evaluation. This would include the influence of pulmonary disease on other organ systems and of systemic diseases upon the respiratory system
  - Act sensitively and to practice high ethical standards in the handling of difficult patient problems for example in the respiratory ICU and terminal illness
  - Communicate effectively with and educate patients and colleagues
  - Provide a high quality of medical care, including the selection and performance of appropriate tests and investigations
- 1.3 **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
- 1.4 **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 (as outlined in Appendix 3, a minimum total of 6 months training, 3 months full time, and 3 months part time is required).
- 1.5 **Allergy:**
- Diagnostic techniques in allergy
  - Clinical and laboratory competence for diagnosing and treating allergic disease of the upper and lower respiratory tract
- 1.6 **Programmes orientated to primary health care:**  
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, diffuse parenchymal lung diseases, occupational lung disorders and HIV-related lung disease, lung cancer
- 1.7 **Management of rare diseases:**
- Cystic fibrosis, interstitial lung diseases, pulmonary vascular diseases
- 1.8 **Occupational and environmental health:**
- Evaluation of workers and the work place
  - Preventative measures for respiratory hazards
  - Detection and treatment of occupational lung disease
  - Legal and legislative principles
  - Principles of compensation

**1.9 Diagnostic pulmonary techniques:**

Objective evidence will be obtained of candidate’s ability to conduct and interpret the following techniques utilising contemporary lung function equipment:

- Spirometry /Flow volume curves
- Body box evaluation
- Blood gas determinations
- Measurements of diffusion
- Exercise studies
- Evaluation of respiratory musculature
- Determination of elastic recoil
- Bronchial and nasal provocation
- Polysomnography

The candidate must also have a good understanding of the rationale for each of these tests, their clinical application within a diagnostic algorithm, and the development of reference values. The candidate must be able to set up and manage a pulmonary function laboratory to conduct these tests and train and supervise lung function technologists.

**1.10 Invasive procedures see portfolio for details)**

<b>Procedure</b>	<b>Signed off competency</b>	<i>Working knowledge of the indications, complications and drawbacks should be familiar to the candidate</i>
<b>Intubation</b>	√	
Insertion of drainage tubes	√	
Fibre-optic bronchoscopy <ul style="list-style-type: none"> <li>• flexible</li> <li>• rigid</li> </ul>	√	√
Needle aspiration	√	
Pleural biopsy	√	
Thorascoscopy		√
Endobronchial ultrasound transbronchial needle aspiration (EBUS-TBNA),		√
Lung volume reduction surgery		√
Bronchial thermoplasty		√

**1.11 Interpreting imaging techniques**

- Includes all pulmonary radiological techniques
- Isotope evaluation of pulmonary ventilation and blood flow
- Chest ultrasound.

**1.12 Research requirements:**

- Performing a research project in pulmonology or critical care is a requirement to sit the examination. This requirement will only be binding for new subspecialty trainees starting their training in 2019<sup>1</sup>. Evidence of completion of the research component will include acceptance of an original paper (single patient case reports excluded) in a local or international peer reviewed journal (including the South African Respiratory Journal) OR successful completion of an MPhil in the subspeciality.
- In the event that the project will only be ready for submission in the 6 months after the examination, or the manuscript is not yet accepted for publication, a 3 to 5 page summary of the research findings (including results and preliminary conclusions) together with a stand-alone formal letter from the Head of Division or Department outlining that the research project has been completed but not yet published needs to be submitted. The evidence of having completed the research, or the relevant letter attesting to completion with the summary, must be included in the logbook for evaluation by the examiners.

**Collaboration of disciplines.../**

<sup>1</sup> Research requirement effective from FS 2019

**1.13 Collaboration of disciplines for training of pulmonologists:**

Broadening the scope of training and experience of students in pulmonology would require collaboration with the following specialities:

- Occupational health specialists
- Critical care specialists (*including Anaesthesiology and Cardiology*)
- Thoracic surgeons
- ENT surgeons
- Radiology and isotope specialists
- Oncologists
- Pathologists

**1.14 Recognition of part-time training**

Part-time training in pulmonology is acceptable in a recognised training Unit that is HPCSA approved. The part-time training programme must be approved by the HPCSA prior to the commencement of training and an HPCSA Training number allocated (the duration of training must be equivalent to a total full-time training period of 2-years; for example, if the training is 50% part-time then 4 years of training is required such that all the training fulfilments are met). Application for the HPCSA approval can be made by the relevant Head of Department. Part-time trainees must keep a weekly record of the training activities attended (e.g. clinics, bronchoscopy, academic meetings, ward rounds etc.) and the duration of these activities (e.g. clinic 5 hours, procedure list 3 hours etc.); this should be signed off by the supervising consultant on a weekly or monthly basis; this is to ensure and provide evidence that the apportioned percentage of training time has indeed been fulfilled (there is no standard format or template for this record). Annually the educational supervisor should meet with the trainee to ensure that satisfactory progress is being made and remedial action should be taken as appropriate. All the other rules and regulations in order to sit the examinations must be met by part time trainees.

**1.15 Examination of candidates in Adult Pulmonology:**

Ongoing evaluation of candidates will be undertaken by registered pulmonologists in units accredited by the Health Professions Council of South Africa. Such evaluation will be documented in prescribed format (*Appendix C*) and presented to the Credentials Committee of SATS and the CMSA before final examination

## **A P P E N D I X B: Detailed Syllabus**

### **1.0 Obstructive Lung Disease**

#### **1.1 Asthma**

- 1.1.1 Pathophysiology and diagnosis of asthma
  - Genetics
  - Epidemiology
  - Biology
  - Evaluation (bronchodilator responses and provocative challenge)
- 1.1.2 Severity and stepped care
  - Mild to moderate
  - Severe
  - Asthma in pregnancy
  - Perioperative care
  - Complications of care
- 1.1.3 Special types and phenotypes of asthma
  - Aspirin-sensitive asthma
  - Exercise-induced asthma
  - Eosinophilic TH2-high asthma
  - Cough variant asthma and other special types
- 1.1.4 Asthma mimics
  - Vocal cord dysfunction
  - Genetic (cystic fibrosis, alpha-1 antitrypsin disease, primary ciliary dyskinesia), and nongenetic
  - Hyper eosinophilic Löffler's syndrome, and other parasitic infections
  - Infiltrative airway processes (granulomatous, amyloidosis, and other processes)
  - Heart failure
  - Central airway obstruction
- 1.1.5 Exacerbation
  - Status asthmaticus
  - Viral infections, allergens, and other causes
- 1.1.6 Allergic bronchopulmonary aspergillosis and fungosis
- 1.1.7 Eosinophilic granulomatosis with polyangiitis

#### **1.2 Chronic obstructive pulmonary disease (COPD)**

- 1.2.1 Pathophysiology and diagnosis of COPD
  - Genetics
  - Epidemiology
  - Biology
  - Evaluation (guidelines, physiology of airflow, and imaging)
- 1.2.2 Management of chronic stable disease
  - Pharmaceutical therapies
  - Nonpharmaceutical therapies (rehabilitation, oxygen, palliation, and other therapies)
  - Operative and perioperative management (lung volume reduction, lung cancer, other management)
  - Comorbidities (vascular disease, lung cancer, and other conditions)
- 1.2.3 Exacerbation of COPD
  - Pharmaceutical therapies
  - Nonpharmaceutical therapies (noninvasive positive pressure ventilation [NIPPV] and mucociliary clearance)
- 1.2.4 Prevention of exacerbations
- 1.2.5 Mimics (heart failure and pulmonary embolism)

**1.3 Obstructive, other than asthma and COPD**

- 1.3.1 Cystic fibrosis (CF)
  - Pathophysiology
  - Airway clearance
  - Non-CF bronchiectasis and issues other than infection
  - Central airway obstruction

**2.0 Diffuse Parenchymal Lung Disease (DPLD)****2.1 Interstitial lung disease (ILD) associated with systemic inflammatory disease**

- 2.1.1 Connective tissue disease (CTD)–associated ILD
  - Rheumatoid arthritis
  - Systemic sclerosis
  - Polymyositis and dermatomyositis
  - Sjögren’s syndrome, psoriasis, systemic lupus erythematosus, and other CTDs
  - Inflammatory bowel disease–associated ILD
  - IgG4-related disease and other diseases
- 2.1.2 Idiopathic interstitial pneumonias
  - Acute interstitial pneumonia
  - Cryptogenic organizing pneumonia
  - Desquamative interstitial pneumonia
  - Idiopathic pulmonary fibrosis
    - 2.1.2.1 Diagnostic evaluation
    - 2.1.2.2 Therapeutic approach
  - Lymphocytic interstitial pneumonia (LIP)
  - Nonspecific interstitial pneumonia
  - Respiratory bronchiolitis–associated ILD
  - Acute and chronic eosinophilic pneumonias
  - Idiopathic pleuropulmonary fibroelastosis and other conditions
- 2.1.3 Granulomatous interstitial lung diseases
  - Sarcoidosis
  - Pulmonary
  - Extrapulmonary
  - Hypersensitivity pneumonitis
  - Granulomatous lymphocytic ILD and other
- 2.1.4 Diffuse cystic lung diseases (DCLDs)
  - Lymphangiomyomatosis
  - Langerhans cell histiocytosis
  - Birt-Hogg-Dube syndrome
  - Follicular bronchiolitis and cystic LIP
  - Light-chain deposition disease, neurofibromatosis, Marfan syndrome, and other DCLDs
- 2.1.5 Other diffuse interstitial lung diseases
  - Familial interstitial pneumonias (surfactant mutations (SP-A, SP-C, ABCA3, etc), Hermansky-Pudlak and other)
  - Erdheim-Chester disease and other histiocytoses
  - Lymphangiomatosis and generalized lymphatic anomalies
  - Amyloidosis
  - Pulmonary alveolar proteinosis
  - Radiation-induced ILD
  - Constrictive bronchiolitis (idiopathic and toxic exposure-induced)
  - Drug-induced ILD

**3.0 Sleep Medicine, Neuromuscular and Skeletal****3.1 Sleep, Respiratory**

- 3.1.1 Central sleep apnea
  - Altitude
  - Cheyne-Stokes breathing
  - Other sleep, respiratory topics (idiopathic, pathophysiology)
  - Evaluation
  - Normal Physiology, sleep and respiration
  - Obstructive sleep apnea
  - Pathophysiology
  - Evaluation
  - Therapy
  - Outcomes
- 3.1.2 Procedures
  - Polysomnography
  - Home sleep apnea testing
  - Multiple Sleep Latency Test (MSLT) and Maintenance of Wakefulness Test (MWT)
- 3.1.3 Sleep, Nonrespiratory
  - Narcolepsy
  - Periodic limb movement disorder
  - Restless legs syndrome
  - Interactions of cardiopulmonary disease and sleep
- 3.1.4 Hypoventilation
  - Chest wall and skeletal
  - Obesity
  - Neuromuscular disease
  - Ventilatory control

**4.0 Epidemiology**

- 4.1 Interpretation of clinical studies
  - Study design
  - Causal inference
  - Sources of error
  - Analytic issues
  - Screening studies
  - Diagnostic studies

**5.0 Infections**

- 5.1 Host defense mechanisms
  - Nonimmune mechanisms
  - Innate immunity
  - Adaptive immunity
- 5.2 Vaccination
  - Pneumococcus and other bacteria (HIB, Pertussis)
  - Influenza and other respiratory viruses
- 5.3 Common syndromes of pulmonary infection
  - Upper respiratory tract infections
  - Acute bronchitis
  - Community-acquired pneumonia
  - Aspiration, lung abscess, and anaerobic infections
  - Empyema
  - Nosocomial pneumonia (hospital-acquired pneumonia [HAP], healthcare acquired pneumonia [HCAP], ventilator-associated pneumonia [VAP])
  - Bronchiectasis
  - CF-related
  - Non-CF-related
  - Mediastinitis



- 5.4 The Immunocompromised Host
  - Chemotherapy-related, post-transplantation, and drug-induced
  - HIV and AIDS
  - Congenital and acquired immune system disorders
- 5.5 Major pathogens in pulmonary infection
  - Pneumonia due to gram-positive bacteria
    - Pneumococcus
    - Staphylococcus aureus, including methicillin-resistant S. aureus (MRSA) and community-associated MRSA (CA-MRSA)
    - Other gram-positive bacteria (Nocardia, enterococci)
  - Pneumonia due to gram-negative bacteria
    - Pseudomonas
    - Enterobacteriaceae
    - Other gram-negative bacteria (Burkholderia, Legionella)
  - Viruses
    - Influenza
    - Cytomegalovirus infection, herpes, and varicella
  - Aspergillus and other opportunistic fungi (Mucor)
  - Endemic fungoses (histoplasmosis, blastomycosis, coccidioidomycosis) and cryptococcosis
  - Parasitic infections
    - Tuberculosis (TB)
    - Non-TB mycobacterial infection
- 5.6 Extrapulmonary Infections in the ICU
- 6.0 Neoplasia**
- 6.1 Lung cancer
  - Non-small cell lung cancer
  - Diagnostic evaluation
  - Staging
    - TNM staging and noninvasive staging
    - Invasive mediastinal staging
  - Molecular markers
  - Small cell lung cancer
  - Treatments for lung cancer
    - Lung cancer requiring surgical treatment
    - Lung cancer requiring nonsurgical treatment (chemotherapy, radiation therapy, palliative therapy)
- 6.2 Other intrathoracic tumors
  - Other primary lung tumors
    - Carcinoid tumors
    - Hamartoma
    - Adenoid cystic carcinoma and other primary lung tumors
  - Tumors of the mediastinum
    - Thymoma
    - Lymphoma
    - Plasmacytoma, sarcoma, and other thoracic tumors
  - Metastatic disease
- 6.3 Malignant pleural disease
  - Mesothelioma
  - Malignant pleural effusion or pleural metastasis
- 6.4 Complications
  - Paraneoplastic syndromes
  - Superior vena cava syndrome
- 6.5 Pulmonary nodules
  - Solitary pulmonary nodule
  - Multiple pulmonary nodules
  - Mimics of pulmonary nodules and masses

- 6.6 Physiologic assessment for thoracic surgery
- 6.7 Interventional pulmonary medicine and thoracic surgery
  - Bronchoscopy, EBUS, and other interventional airway procedures
  - Palliative interventions
  - Video-assisted thoracoscopy (VATS) and other surgery
- 6.8 Lung cancer screening

**7.0 Pleural Disease**

- 7.1 Structure and physiology
  - Fibrosis
  - Calcification
  - Thickening
  - Fluid dynamics
  - Trapped lung and lung entrapment
- 7.2 Pneumothorax
  - Primary spontaneous
  - Secondary
    - Parenchymal disease-related
    - Iatrogenic
    - Traumatic
    - Catamenial, familial, and other types
  - Outcomes
- 7.3 Effusions and pleural pathology
  - Transudative
    - Hemodynamic and oncotic
    - Hydrothorax
    - Urinothorax and other types
  - Exudative
    - Infectious
      - Occupational
      - Noninfectious inflammatory
    - Hemorrhagic
    - Chylous
    - Drug-induced
    - Eosinophilic
- 7.4 Diagnostic and therapeutic procedures
  - Thoracentesis and pleuroscopy
  - Chest tubes and tunneled pleural catheters

**8.0 Quality, Safety, and Complications**

- 8.1 Methods of assessing quality, safety, and patient satisfaction
  - Benchmarking
  - Adverse event reporting
  - Patient satisfaction surveys
  - Root cause analysis
  - Failure mode and effects analysis
- 8.2 Methods for improving quality and safety
- 8.3 Disclosure of errors to patients and family members
- 8.4 Complications of medical care
  - Adverse drug effects and drug interactions
  - Complications of bronchoscopy and pleural procedures
  - Adverse outcomes of thoracic surgery
  - Adverse effects of thoracic radiation therapy
  - Complications of translaryngeal intubation and tracheostomy
  - Infection control
- 8.5 Ethics and professionalism

**9.0 Transplantation**

- 9.1 Lung transplantation
  - Patient selection
  - Complications of lung transplantation
  - Transplantation outcomes
- 9.2 Pulmonary complications of transplantation other than lung
  - Infections
  - Neoplastic complications
  - Other complications of organ transplantation (graft-versus-host disease)

**10.0 Vascular Diseases**

- 10.1 Pulmonary thromboembolic disease
  - Deep venous thrombosis
  - Pulmonary thromboembolism
  - Nonthrombotic pulmonary embolism
  - Lemierre's syndrome
- 10.2 Pulmonary hypertension
  - Pulmonary arterial hypertension
  - Chronic thromboembolic disease
  - Right ventricular failure
  - Other pulmonary hypertension (veno-occlusive disease, portopulmonary hypertension)
- 10.3 Pulmonary vasculitis and capillaritis
  - Granulomatosis with polyangiitis
  - Anti-glomerular basement membrane disease
  - Microscopic polyangiitis and other pulmonary vasculitides
- 10.4 Pulmonary vascular malformations
  - Pulmonary arteriovenous malformation
  - Hepatopulmonary syndrome
- 10.5 Sickle cell disease

**11.0 Respiratory Physiology and Pulmonary Symptoms**

- 11.1 Respiratory physiology
  - Pulmonary mechanics
  - Oxygenation
  - Cardiovascular physiology
  - Cardiopulmonary exercise testing
  - Acid-base interpretation
  - Hypercapnia and hypocapnia
  - Pulmonary function testing
- 11.2 Special situations
  - Pregnancy
  - Obesity
  - Neuromuscular disease
  - Preoperative evaluation (nonthoracic surgery)
  - Barometric pressure-related (high altitude, diving, and other special situations)
- 11.3 Approach to pulmonary symptoms
  - Dyspnea
  - Cough
  - Chest pain
  - Hemoptysis

**12.0 Occupational and Environmental Diseases**

- 12.1 Tobacco use treatment and smoking cessation
  - Occupational asthma and work-exacerbated asthma
  - Indoor and outdoor air pollution
  - Barometric- or thermal-related disorders
- 12.1.1 Pneumoconioses
  - Asbestosis
  - Berylliosis
  - Coal-workers' pneumoconiosis
  - Hard metal pneumoconiosis
  - Silicosis
- 12.2 Work and disability evaluation
- 12.2.1 Toxic inhalations
  - Carbon monoxide
  - Organic agents
  - Endotoxin
  - Smoke inhalation
  - Metal fume fever
  - Other toxic exposures (dust, cobalt)
- 12.3 Environmental cancer risk

## APPENDIX C

### EXAMINATION PROCEDURE FOR ADULT PULMONOLOGY

#### 1.0 FORMAT AND CONDUCT OF THE EXAMINATION

##### 1.1 Written examination:

The examination will comprise two 3-hour written papers comprising 12 questions each (Paper 1 and Paper 2).

- Paper 1 – 12 short questions relating to *basic sciences* in pulmonology and critical care
- Paper 2 – 12 short questions related to *clinical aspects* of pulmonology.

The Blueprint for the exam will be as follows:

Syllabus	No of Questions: Paper I*	No of Questions: Paper II*
Obstructive Lung Disease	2	1
Critical Care Medicine	1	2
Diffuse Parenchymal Lung Disease (DPLD)	1	1
Sleep Medicine, Neuromuscular and Skeletal	1	1
Infections	2	1
Neoplasia	1	1
Pleural Disease	1	1
Vascular diseases	1	1
Quality, Safety, and Complications, Transplantation	1	1
Respiratory Physiology and Pulmonary Symptoms	1	1
Epidemiology, Occupational and Environmental Diseases,	0	1
	12	12

\* The suggested question breakdown is a guideline and will vary according to 3 year cycles. Thus in some years there may be more or less than the number of questions suggested for each disease topic.

##### 1.2 Portfolio:

1.2.1 The candidate will keep a logbook during the full two years of training

1.2.2 Candidates will have to achieve a minimum pass mark for the logbook as advised by the supervisor of the training institution and verified by the examinations convenor. The logbook must be certified by the Head of Department after eighteen months. When the logbook is completed after eighteen months it will be submitted to the convenor of the examination or his/her nominee for evaluation.

##### 1.3 Oral examination:

The oral examination will include all aspects of pulmonology and critical care as defined in the syllabus

1.4 No clinical examination is required

##### 1.5 Conduct of the examinations:

1.5.1 The written examination:

1.5.1.1 Four examiners (and a moderator) will participate in the written examinations of each candidate; some of the examiners will come from a different Unit.

1.5.1.2 Each examiner will submit 6 Questions with a marking memorandum to the convenor.

1.5.1.3 The examiners will submit their assessments in percentages and a total percentage for each paper will be calculated.

1.5.1.4 In order to pass the written examination and be invited to the clinical examination, a candidate needs to achieve a minimum of 50% in each of the 2 papers, i.e. the paper 1 and paper 2.

**1.5.2 The oral exam**

- Candidates who pass the written examination and who fulfil all the other requirements will be entitled to take the oral examination.
- In order to pass the oral examination, the candidate will need to achieve a minimum of 50%.
- The examination panel will comprise 4 examiners and 1 moderator. A minimum of 2 of the examiners will be external to the institution or university hosting the examinations.
- Each candidate will be examined for approximately 1 hour. Each of the examiners will ask 2 questions, and examine the candidates for approximately 15 minutes.
- The examination will be structured, balanced and similar for each candidate. The content of the examination questions should reflect the syllabus as outlined in appendix 'B'
- The examination questions are predominantly clinically-orientated though examiners are entitled to ask questions pertaining to basic science as well. The questions will often incorporate clinical case histories and may ask for interpretation of pulmonary imaging (MRI, CT scan, ultrasound, etc.) and lung function tests. Examiners are also entitled to ask candidates about the use and application of certain pieces of equipment including inhaler devices, spirometers, etc. Pathological photographic material may also be used in the examination.
- The candidates are not permitted to mix with those still awaiting to be examined (thus, candidates completing the oral examination should immediately exit the examination room and should not have electronic, cell phone, or verbal communication with the candidates that are still waiting to be examined).
- At the start of the examination the moderator and the convenor will run through the proposed questions for the oral examination to ensure that there is no repetition, redundancy, and broad coverage of the syllabus. In keeping with College directive, the candidates should be aware that the oral examinations will be recorded. In addition, examiners will make notes about aspects of the candidates answers, as appropriate, and these notes will be submitted to the College together with the recordings, via the convenor.
- In order to pass the examination overall, the candidate must pass both the written and oral components of the examination.

**A P P E N D I X D: Portfolio**

ONGOING EVALUATION FOR  
PULMONOLOGISTS IN TRAINING

*(This form must be completed by the head of the approved pulmonology unit in which the candidate receives training. Please complete in writing (not typed) and initial each item. The completed form must be submitted to the Chairperson, SATS Credentials Committee with the candidate’s application for registration*

Name of candidate: .....

Primary speciality: .....

Date of HPCSA registration of primary speciality: .....

Academic training unit: .....

Commencement of pulmonology training (day/month/year): .....

Supervising pulmonologists: .....

**SIX MONTHLY REVIEWS**

Please indicate the dates for every review period. Rate the candidate’s ability for the first 6 items as inadequate, adequate or excellent. When signing off the log book, the head of the unit, through consultation with other consultants in the unit, is attesting the competency of the candidate in each of the listed activities outlined below. The unit head will, where necessary, witness procedures, or through the evidence provided by other consultants, attest to the competence of the candidate in each of the itemised failures outlined below. Plans are current afoot to develop directly observed procedural evaluations together with a specified competency examination. Whilst this is encouraged within units, it is not as yet a formal requirement in order for the log book to be signed off.

	6 months	12 months	18 months	24 months
1.1 Theoretical knowledge of adult/paediatric pulmonology				
1.2 Clinical skills: <ul style="list-style-type: none"> <li>• Diagnostic evaluation</li> <li>• Thoracic ultrasound</li> <li>• Interventional procedures</li> <li>• Therapeutic decision making</li> </ul>				
1.3 Maintenance of good ethical standards and an empathetic approach to patients				
1.4 Interpretation of imaging procedures				
1.5 Ability to perform and interpret bronchial hyper-reactivity tests				
1.6 Ability to evaluate and apply histopathological and cyto-logical results				
<b>BRONCHOSCOPIES</b>				
Number performed ( <i>target 140; minimum is 100</i> )				
Number of pleural and transthoracic needle aspirations performed ( <i>minimum of 25</i> )				

	6 months	12 months	18 months	24 months
<p><b>LUNG FUNCTION PROCEDURES (no)</b></p> <p>Flow volume curves</p> <p>Body box determinations</p> <p>Diffusion studies</p> <p>Exercise studies</p> <p>Blood gas determinations</p> <p>Helium FRC</p> <p>Histamine challenge</p> <p><b>ICU EXPERIENCE</b></p> <p>Minimum period of 3 months (<i>required training is at least 3 months training taken intermittently</i>)</p> <p>Period spent in ICU units (<i>months</i>)</p> <p>Number of patients cared for on ventilators</p> <p>** State supervising clinician</p>				

**EXAMINATIONS**

State formal tests/examinations completed (name, date, nature, result)

.....

.....

.....

**RESEARCH EXPERIENCE.../**



**RESEARCH EXPERIENCE:**

**State number of presentations delivered:**

Local	<input type="text"/>
National	<input type="text"/>
International	<input type="text"/>

**Publications:**

Local	<input type="text"/>
National	<input type="text"/>
International	<input type="text"/>

**Research – awards**

**Projects – in progress**

**Projects – completed**

*Please provide evidence of the research undertaken as outlined in regulation 1.12 of the training requirements. The relevant documentation must be filed in the logbook for review by the examinations panel. Indicate clearly the candidate's role in the project/s.*

**HEAD OF TRAINING PULMONOLOGY UNIT:**

I endorse that the above details correctly reflect the assessment of this candidate by a specialist pulmonologist of this unit:

NAME: .....

DATE: .....