



Fellowship Programme in

**Interventional Pulmonology & Respiratory
Critical Care**

Message from the President

Dear Prospective Fellows,

It is with great pleasure that I extend my warmest greetings to you and introduce the Interventional Pulmonology and Respiratory Critical Care Fellowship at Ramaiah Memorial Hospital. As the President of this esteemed institution, I am delighted to invite you to be a part of our fellowship program, where we strive to shape the future leaders in the field of pulmonary medicine and critical care.

Ramaiah Memorial Hospital has a longstanding commitment to excellence in healthcare, education, and research. Our state-of-the-art bronchoscopy suite and Intensive care unit coupled with a dedicated team of highly skilled physicians and staff, will ensure that we provide the highest quality of care to our patients. We take immense pride in our comprehensive approach to interventional pulmonology and critical care, and we are excited to share our knowledge and expertise with the next generation of medical professionals.

During your fellowship, you will have the opportunity to work alongside our experts, who will guide and mentor you throughout your training. Our curriculum is designed to provide a well-rounded learning experience, encompassing a broad range of clinical, procedural, and research activities. As a fellow, you will gain experience in various interventional pulmonology procedures, critical care management, advanced bronchoscopy techniques, and the diagnosis and treatment of complex respiratory conditions. Additionally, you will be actively involved in research projects, which will contribute to the advancement of medical knowledge and patient care.

At Ramaiah Memorial Hospital, We are committed to supporting your development as a well-rounded physician, equipped with the skills and knowledge necessary to excel in the dynamic field of interventional pulmonology and critical care.

Furthermore, Bangalore, known as the Silicon Valley of India, provides a vibrant and culturally diverse backdrop for your training. The city's cosmopolitan atmosphere, coupled with its rich heritage and modern infrastructure, offers a unique blend of opportunities for personal and professional growth.

I invite you to embark on this transformative journey with us at Ramaiah Memorial Hospital. As a fellow, you will join a community of passionate individuals dedicated to advancing patient care and making a positive impact in the lives of countless individuals. Together, we can redefine the future of interventional pulmonology and critical care.

Thank you for considering Ramaiah Memorial Hospital for your fellowship training. I look forward to welcoming you to our esteemed institution and witnessing your growth as a future leader in the field.

Warm regards,

Dr K C Gurudev
President
Ramaiah Memorial Hospital



Message from the Programme Directors

We are excited to present to you an exclusive opportunity to join the Interventional Pulmonology and Respiratory Critical Care Fellowship at Ramaiah Memorial Hospital. As course coordinators, we are privileged to introduce you to this program that will shape your career in the dynamic field of pulmonary care.

The Interventional Pulmonology and Respiratory Critical Care Fellowship at Ramaiah Memorial Hospital is meticulously designed to provide comprehensive training in all aspects of the field. From advanced bronchoscopic interventions to the management of complex respiratory critical care cases, candidates will receive hands-on experience and mentorship that is second to none.

Our fellowship program emphasizes a multidisciplinary approach to patient care, ensuring exposure to a wide range of medical specialties. Collaboration with esteemed professionals from various domains, including critical care, thoracic surgery, radiology, pathology, and oncology, will foster a holistic understanding of interventional pulmonology and respiratory critical care.

Completing the Interventional Pulmonology and Respiratory Critical Care Fellowship at Ramaiah Memorial Hospital will open doors to diverse career opportunities. Whether you aspire to join a corporate healthcare institution, pursue academic research, or establish your own practice, this fellowship will equip you with the necessary skills and knowledge to thrive in your chosen path.

We welcome aspiring fellows who are driven, compassionate, and dedicated to excellence. If you have a genuine passion for interventional pulmonology and respiratory critical care, our department is the perfect destination to nurture your aspirations.

We look forward to welcoming you to Ramaiah Memorial Hospital and witnessing your growth as a skilled interventional pulmonologist and respiratory critical care specialist.



Dr Bharath Chhabria
MD, DM
Programme Director



Dr Harshith Rao
MD, DM, DNB, MNAMS, EDARM
Programme Co-ordinator

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Introduction

Ramaiah Memorial Hospital is a renowned healthcare institution located in Bangalore, India. It is a part of the Ramaiah Group of Institutions, which has a rich legacy of providing quality education and healthcare services. The hospital was established in 2003 and has since grown to become a leading multidisciplinary hospital in the region.

Ramaiah Memorial Hospital is known for its state-of-the-art infrastructure, advanced medical technology, and a team of highly skilled medical professionals. The hospital offers a wide range of medical services with Pulmonary and Critical Care Medicine being at the forefront.

The hospital and department of Pulmonary & Critical Care are committed to providing patient-centric care and provide a holistic approach to healing. We strive to maintain the highest standards of medical ethics and professionalism. In addition to clinical services, Ramaiah Memorial Hospital including the division of advanced pulmonary sciences is actively engaged in medical research and education. Several fellowships are run under the the memorial hospital and several super specialty programs are ongoing in collaboration with the Ramaiah teaching hospital

Overall, Ramaiah Memorial Hospital has established itself as a trusted healthcare destination in Bangalore, known for its quality healthcare services, patient-centric approach, and commitment to medical excellence.

Goals

- To provide advanced training in interventional pulmonology and respiratory critical care medicine and integrate skills learnt in the management of complex pulmonary and critical care patients
- To inculcate human values of empathy, ethics, compassion and discipline with a sound background knowledge and clinical skills needed to practice interventional pulmonary and critical care medicine
- To maintain a good rapport and communication with the patients and their families to achieve better understanding of the medical condition and its prognosis and to help them take an informed decision in management of the medical issues.
- To improve, enhance and update the skills of clinical assessment, diagnosis and treatment of pulmonary and critical care illnesses
- To ensure evidence-based practice of pulmonary and critical care medicine including ventilator strategies for complex pulmonary and critical care diseases
- To improve the capabilities as a team leader that consists of junior doctors, nursing staff, technicians and paramedical staff of the hospital
- To nurture the role as an academician as a guide or teacher to his/her juniors with respect to patient care and academics

Faculty

Department of Pulmonary & Critical Care Medicine

Dr Harshith Rao

MBBS, MD (Int Med, PGI),

DM (Pulmonary & Critical Care Medicine, PGI),

DNB (General Medicine), **MNAMS, EDARM** (Switzerland)

Dr. Harshith Rao is an expert pulmonologist and critical care physician with over 7 years of experience. He completed his MBBS from Bangalore Medical College and Research Institute and moved to Chandigarh to pursue his higher medical education MD Internal Medicine and DM Pulmonary & Critical Care Medicine from the prestigious Post-graduate Institute of Medical Education and Research (PGIMER, Chandigarh), which is one of the premier institutes in the country for postgraduate medical education and a WHO collaborating centre for research & capacity building in chronic respiratory diseases. There after he honed his skills in the field of Interventional Pulmonology including advanced bronchoscopies (radial EBUS, linear EBUS, rigid bronchoscopy, cryotherapy, thoracoscopy) which are novel ways to treat complex pulmonary diseases at PGIMER, trained by renowned pulmonologists of India and he also acquired the training in diagnosing and treatment (targeted and Immunotherapy) of Lung cancers. After completion of the training, he was selected as a permanent faculty in the department of Pulmonary, Critical Care and Sleep medicine, AIIMS, New Delhi, which is ranked first among the best hospitals in India. His field of expertise being Interventional pulmonology, interstitial lung diseases, pulmonary Vasculitis, targeted and immunotherapy for lung cancers, NIV and management of ARDS.

Dr Bharath A Chhabria

MBBS, MD (Int Med, PGI),

DM (Pulmonary & Critical Care Medicine, PGI)

Dr Bharath A Chhabria is a dedicated physician, intensivist and interventional pulmonologist with 7 years' experience in Pulmonary and Care Medicine. He completed his training in the prestigious Post Graduate Institute of Medical Education and Research, Chandigarh in Internal Medicine and secured the silver medal (batch topper) in the final exams in 2017. He worked as a senior resident in Chandigarh for 1 year following which he secured the first rank in the DM entrance exam and chose Pulmonary and Critical Care Medicine as super specialisation. He has published 21 research papers in the field of Internal Medicine, Pulmonology and Critical Care. He has performed several flexible bronchoscopies, rigid bronchoscopies, medical thoracoscopies, endobronchial ultrasound procedures, lung biopsies, bronchial thermoplasties, Cryo lung biopsies and tracheostomies. He possesses technical expertise in managing obstructive airway diseases including severe Asthma, COPD and thoracic malignancies.

His field of expertise being Interventional Pulmonology, obstructive airway diseases, sleep disorders, acute respiratory failure, newer modes of ventilation, NIV and HFNC.

Department of Respiratory Medicine

Dr Prasanna Kumar T

MBBS (M.S.Ramaiah Medical College)

MD (Pulmonary Medicine, NMC, Raichur)

Dr.Prasanna Kumar T, is an Associate professor at Ramaiah Medical College with 11 years' experience in the field of Pulmonology. Also Consultant Pulmonologist at Ramaiah Memorial hospital since 2014. He has graduated

from the prestigious Ramaiah Medical college. His expertise in respiratory diseases with special interest in COPD, Asthma, Respiratory Infections, post obstructive airway disease, interstitial lung disease , occupational lung diseases, Pleural Diseases ,Tuberculosis, Long COVID Care and Sleep disordered breathing.

He is trained in bronchoscopy, endobronchial ultrasound procedures and pleural interventions. He has original research articles published in national and international journals. Overall, he is highly skilled physician with considerable experience in the diagnosis and treatment of respiratory diseases

Dr Pragati Rao D

MBBS, MD (Pulmonary Medicine)

Dr Pragati Rao D is a Consultant Pulmonologist at Ramaiah Memorial Hospital, known for her experience in diagnosing and treating respiratory disorders. She has interests in Interventional Pulmonology and Respiratory Allergies. She has headed the COVID unit of 200 patients, trained 10+ PG students, carry an overall 19 years of experience in the Department of Respiratory Medicine, managing pulmonary diseases, including asthma, chronic obstructive pulmonary disease (COPD), pulmonary infections, interstitial lung diseases, lung carcinomas, and sleep disorders. She has conducted workshops/CMEs on sleep disorders (SNORECON 2014) and connective tissue ILD (2022). She has given guest lectures on Recent Advances in Bronchial Asthma (APRESCON 2013), COPD, Bronchial Thermoplasty (Zonal CME 2016), and Lung function tests (MERT 2022). She is involved in 5 current ongoing research and a total of 12 publications. She has 19 years of academic experience as a Senior Resident to the Head of the Department, trained both UGs and PGs in their thesis and their Extramural (ICMR) Projects in the medical college. She was a committee member, recognized by the Chest Club in Guntur and was the chairperson in recent advances in Bronchial Asthma (2023), ILD (2022), and Best of Chest – Pleural Interventions (2022) and was a speaker at Women's Pulmonology CME, Bangalore (2023)

Equipments & Facilities

Interventional Pulmonology

- Virtual Bronchoscopy simulator for training purposes
- Flexible diagnostic video-bronchoscopes (P-190 scope and OLYMPUS X1 processors)
- Flexible therapeutic video-bronchoscopes (1TH-1100 scope and Pentax scope with processors)
- Semi- rigid and rigid thoracoscope
- Curvilinear EBUS scope and processor (UC-190F)
- Radial EBUS and probe driving unit
- C arm (Siemens)
- Rigid bronchoscopes (Karl storz) and complete accessories
- Portable bronchoscopes and LCD display for portable bronchoscopies
- Cryo station (ERBE 2 with Cryo probes)
- APC and electro-cautery stations with accessories
- Stent deploying unit
- State of the art bronchoscopy suite
- Fully functioning operation theatre for advanced rigid bronchoscopies

Respiratory Critical Care

- Advanced ventilators with newer modes (ASV, HFNC, NIV, PRVC, APRV, AVAPS)
- Dedicated Ultrasound machine for POCUS
- State of the art 23 bedded medical ICU

General Pulmonology

- Spirometry with broncho-dilator reversibility
- Forced oscillometry (FOT)
- DLCO
- Cardio pulmonary exercise testing
- 24 hour HRCT with CTPA facilities
- Level 1 and 2 Polysomnography

Duration of The Course

1 year (candidates are expected to work in the department as full time doctors and are not allowed to practice elsewhere during the course)

Seats

- A maximum of three candidates per year in two sessions (February & August) shall be admitted to the course as per vacancies.

Eligibility

- MD/DNB in General Medicine or its equivalent
- MD/DNB in Respiratory medicine/TB and chest or its equivalent
- DM/DNB in Pulmonary Medicine (after completion of MD General medicine or Respiratory medicine)
- Diploma in TB and chest diseases

Application

An application letter which includes all the details of the candidate (including why the candidate is interested in joining the course, necessary educational qualification and experience gained) with scanned documents of the following certificates to be sent to msrpulmo@gmail.com in single PDF file

- Photos : 2 nos
- 10th Marks card
- MBBS degree certificate
- MD/DNB/DM degree certificates
- KMC registration certificate
- Experience certificates if any
- Copy of the Thesis abstract done in the eligibility degree course
- Curriculum vitae
- Aadhar card

Selection

- Candidates shall be scrutinized for the eligibility criteria and shall be called for an interview
- If necessary, a preliminary entrance test shall be conducted
- The interview board comprises of a panel consisting of following members:
 - At least one of the faculty member of the medical college who has completed DM in Pulmonary and critical care medicine and has training and reasonable experience in Interventional pulmonology and critical care medicine.
 - The President of Ramaiah Memorial hospital
 - Designated Faculty from Department of Respiratory Medicine
 - A member from Human resource department
- Based on the performance in the interview, candidate shall be selected by the selection committee.

Note: This fellowship programme is NOT recognized by Ramaiah University of Applied Sciences or National Medical Commission

Fee & Stipend

- Fee for the course shall be intimated to the interested candidates
- Monthly stipend: 65,000/- INR per month

Note: In the event of the candidate leaving the course by discountenance or otherwise and thus failing to complete course

1. The fee paid by candidate will not be refunded.
2. The stipend drawn by the candidate from the Institute during the period of the Fellowship programme to be paid to Institute.

Attendance & Leave

As per Ramaiah Memorial Hospital guidelines for Junior Consultant.

Course Contents

Interventional Pulmonology

1. Diagnostic and therapeutic bronchoscopy (flexible and rigid bronchoscopy)
 - Virtual Bronchoscopy simulation
 - Bronchoalveolar lavage(BAL)
 - Trans bronchial lung biopsy (TBLB) with fluoroscopy guidance
 - Endobronchial biopsy (EBB)
 - Endobronchial needle aspiration (EBNA) & brush cytology
 - Endobronchial ultrasound guided trans bronchial needle aspiration of mediastinal lymph nodes and tumours (EBUS-TBNA) including Elastography
 - Endoscopic ultrasound with bronchoscope guided fine needle aspiration (EUS-B-FNA)
 - Debulking procedures including coring with rigid bronchoscopy, cryoablation and cryorecanalization, electrocoagulation therapy and argon plasma coagulation
 - Placements of metallic and silicon stents for central airway obstruction, spigots and blockers for hemoptysis
 - Localization of alveolopleural and bronchopleural fistulae
 - Foreign body removal
 - Trans bronchial Cryo lung biopsy
 - Radial endobronchial ultrasound and fluoroscopic guided biopsy of lung nodules
2. Diagnostic and therapeutic thoracentesis
3. Tube thoracostomy and medical pleurodesis
4. Pleural indwelling catheter insertion
5. Medical thoracoscopy with pleural biopsy and Adhesiolysis (including rigid and flexible thoracoscopy)

Respiratory Critical Care

- Management of critically ill medical patients including non-invasive and invasive mechanical ventilation
- Management of sepsis and hospital acquired infections
- Difficult airway management: fibre optic intubation, bronchoscopy guided intubation, emergency cricothyroidotomy and tracheostomy
- Clinical applications of Capnometry in ventilated patients.
- Non-invasive ventilation strategies: CPAP, BPAP, AVAPS, ASV
- Evaluation of difficult to wean patients on ventilators
- Percutaneous dilating tracheostomy in critical care units
- Point of care ultrasonography of the lungs and the heart (POCUS)
- Compression ultrasonography of lower limbs
- Bedside 2D echocardiography and thoracic ultrasonography
- Invasive arterial monitoring and central venous catheter insertion
- Palliative therapy for end stage lung diseases and metastatic lung cancer

Thoracic Oncology

- Tissue Diagnosis of lung and thoracic malignancies
- Evaluation of Solitary Pulmonary Nodule

General Pulmonology

- Interpretation of pulmonary function tests (including spirometry, forced oscillometry, DLCO, cardiopulmonary exercise testing, arterial blood gas analysis)
- Interpretation of thoracic radiology (HRCT Thorax) in management of pulmonary diseases
- Management of MDR tuberculosis.
- Oxygen delivery devices including domiciliary and long term oxygen therapy
- Multi-disciplinary discussion meeting for diagnosis of interstitial lung diseases
- Evaluation and management of sleep related breathing disorders (OSA, CSA, OHS)

Teaching Scheme

Clinical work

- The candidates are required to manage patients allotted to them in the wards and ICU. Take a detailed history and perform the clinical examination of the patient. Keep possible differential diagnosis and analyze the issues. Prepare the plan of evaluation and management of the issues after discussion with the consultant in charge of the patient.
- Guide and teach junior doctors posted to the department and coordinate with them accordingly
- Assess and integrate the interventional procedures required for the patients
- Attend to the calls and cross referrals from other departments
- Manage post procedure complications as advised

Interventional Pulmonology and Critical care medicine

- Minimum number of procedures to be performed for completion of the course

	Observed/ Assisted	Performed
Bronchoscopy simulations	-	10 hours
Flexible bronchoscopy	20	30
EBUS guided procedures	10	15
Rigid bronchoscopy	10	10
Thoracoscopy	05	05
Central line insertion	05	10
Endotracheal intubation	05	10
Pigtail/ Chest tube insertion	05	10
Ventilator strategies in managing respiratory failure	10	20

Academic activities

- Daily bedside discussions to be done during rounds
- Journal club once every month
- ICU seminar once every month
- Interventional pulmonology seminar once a month

Research activity

- Expected to collect data of interventional procedures and present paper at least in one national conferences
- Expected to have at least one publication in an indexed journal at the end of the course

Duties and Responsibilities

- Manage in-patients admitted under Pulmonary and critical care medicine and decide necessary evaluation and plan of management.
- Involve in patient and care giver counselling after the rounds
- Integration of Interventions in the management of patients
- Pre procedure and post procedure management of patients undergoing pulmonary interventions
- Manage patients on designated beds in MICU with respiratory failure
- Document the issues and management plan in the progress notes of the case record.
- Attend to calls and referrals from other departments and decide on appropriate management after discussion
- Observe, assist and perform procedures in ICU, bronchoscopy suite and OT
- Attend and involve in the academics of the department as per schedule
- Involve in research activities of the department
- Maintain the log of all the activities observed, assisted and performed during the entire duration of course
- Adhere to ethical principles and practice of the medical profession
- Maintain the scope and instruments carefully and cause no damage to them

Evaluation Process and Final Examination

- The performance of the fellow will be monitored carefully during the course of training.
- Formal evaluation by the faculty members on a regular basis. This includes the performance of procedure, interpretation of finding and planning of appropriate therapy. These will be recorded in the log book maintained by the candidate. The faculty member shall supervise the log book and sign it regularly.
- At the end of the course there will be:
 - Written exam comprising of 2 papers of 100 marks each
 - Practical exam comprising of two separate clinical scenarios: bronchoscopic/thoracoscopic procedure and ICU patient with ventilator.
 - The candidate should secure a minimum of 50% marks in written and practical tests to pass the examination.
 - Evaluation of research project done by the candidate
 - Evaluation of log book and written assessment of the faculty.



RAMAIAH
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