

**UNIVERSITY OF MEDICINE AND PHARMACY**

**„CAROL DAVILA” BUCHAREST**

**DOCTORAL SCHOOL**

**DOMAIN MEDICINE**



**CONTRIBUTIONS TO RESEARCH ON INFECTIOUS AND  
INFLAMMATORY RESPIRATORY DISEASES**

**ABSTRACT OF HABILITATION THESIS**

**CANDIDATE**

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### **Abstract of Habilitation Thesis**

The habilitation thesis entitled “Contributions to research on infectious and inflammatory respiratory diseases” has been written according to the recommendations of the National Council for Attestation of University Titles, Diploma and Certificates (CNATDCU) and of the Regulation of the Council of Doctoral University Studies of the University of Medicine and Pharmacy “Carol Davila” from Bucharest on obtaining the habilitation attestation and include a presentation of the course of the personal career from a professional, academic and scientific point of view, followed by the presentation of the main directions of development in the same three domains.

The first section contains identification data. I am Associate Professor and Head of Discipline of Pneumology – Elias Emergency University Hospital, 4<sup>th</sup> Clinical Department – Cardio-Thoracic Pathology, Faculty of Medicine, University of Medicine and Pharmacy “Carol Davila”; Consultant in Pneumology with attestation in bronchial endoscopy and special lung function testing; Medical Director of Elias Emergency University Hospital; Residency coordinator in Pneumology and Chair of the Pneumology Commission of the Ministry of Health. I went through all Academic grades starting from Junior Assistant Professor in 1994 up to Associate Professor nowadays, and all professional grades.

The second section is dedicated to professional activity. I have been educated at three great Universities: University of Medicine and Pharmacy “Carol Davila” where I have graduated from Medical School in 1991, Master in Public Health and Health Services Management in 2007 and PhD in Medicine in 2006 with Magna cum Laude distinction; Imperial College London, UK, where I have worked for one year in research as a European Respiratory Society Research Fellow under the supervision of prof. Kian Fan CHUNG; and Universite Paris Descartes, France where I have graduated with a Diplome Inter-Universitaire – Sommeil et sa Pathologie în 2016. In 2011 I have passed the European Examination and have been awarded the European Diploma in Adult Respiratory Medicine.

During my 30 years long professional activity I have achieved several things for the first time in Romania:

- I have founded and coordinating until recently the first Pneumology service in a multidisciplinary emergency hospital in Elias hospital
- I have founded the first Acute Respiratory Care Unit in Romania (officially in 2015), representing the birth of a new branch of Pneumology, the Acute Respiratory Medicine
- I have been coordinating the Pneumology team that has participated in the development of the first (and the only for now) Lung Transplant Programme in Romania, and has performed the first lung transplant in Romania.

The third section describes the academic activity. I went through all university grades from Junior Assistant Professor starting on March 1<sup>st</sup> 1994 up to Associate Professor and Head of Discipline in this moment, in the beginning in the Pneumophthisiology Discipline in Marius Nasta Institute, and thereafter in the Discipline of Pneumology, Elias Emergency University Hospital. Starting from 2011 I am residency coordinator in Pneumology.

During the almost 30 years of academic activity, I have participated, and lately coordinated, the teaching and training of 4<sup>th</sup> year medical students during the Module of Pneumology, and of residents of Pneumology or other specialties. I have coordinated 12 Graduation Theses, each of them a small research project in Pneumology or Medical Education.

During this period I have made some innovations in the process of medical education of students:

- I have developed in 2019 (before SARS-CoV-2 pandemic) an online learning platform for Pneumology Module students, using Moodle software, the most popular learning management system which is open source and based on a constructivist and a social constructionism educational approach. This platform offers a range of teaching/learning instruments both synchronous and asynchronous.

- Starting in 2019 I have introduced an OSCE (Objective Structured Clinical Examination) type of exam, which is considered the reference standard for evaluation of practical abilities of medical students. To my best knowledge, the Discipline of Pneumology is the first, and for the moment the only one, from our University that is offering such an exam.

I also have a significant international educational experience, as I have been a member (2014-2021) and now the Chair (2021-2024) of the Examination Committee for the Adult Respiratory Medicine Examination run by the European Respiratory Society.

The fourth section and the most consistent is dedicated to scientific activity. I have presented the scientific contributions in three main fields:

- respiratory infections and especially tuberculosis in immunocompromised hosts and SARS-CoV-2 infection
- inflammatory lung diseases – mostly severe asthma and immunological mechanisms
- acute respiratory failure and non-invasive ventilation as a therapeutical method

I have published 18 papers in ISI indexed medical journals, out of which 12 as a principal author and 6 as a secondary author, having a Hirsch index of 6 (Web of Science) and respectively of 10 (Google Scholar). My papers have been cited 585 times (Web of Science) or 1141 times (Google Scholar). The cumulated impact factor of articles where I am a principal author is 45.999.

I have been project coordinator in two national research grants: “The role of induced sputum in monitoring of inflammatory lung diseases”, project type PED nr. 258/2003 in VIASAN Programme, PNCDI and “Role of regulatory T cells in the mechanism of tuberculosis” grant no 1447/2009 in IDEI Programme, PNCDII, and a team member in an additional national research grant: “Network for respiratory rehabilitation of patients with Chronic Obstructive Pulmonary Disease”, contract 24/CP/I/2007 in the Capacities Programme, PNCDI 2007-2013. I have participated in the international consortium GenPhenReSa funded by Deutsche Forschungsgemeinschaft (DFG, German Federal

Research Agency) and in the Clinical Research Collaboration TBNET of the European Respiratory Society.

I have been principal investigator in over 25 randomized controlled clinical trials mainly in asthma (mostly severe asthma), COPD, community-acquired pneumonia and bronchiectasis.

My most important publications are:

- Bumbacea et al. *Eur Respir J* 2004;24:122 – a study of the parameters associated with irreversible airflow obstruction in severe asthma, published in *European Respiratory Journal* (impact factor 3.096 in 2004) which has 178 citations in *Web of Science*, has been cited 9 years in the row (2006-2014) in the most influential asthma guideline in the world, issued by the Global Initiative for Asthma, and thereafter in the *European Respiratory Society / American Thoracic Society severe asthma guideline*
- Sester et al. *Am J Respir Crit Care Med* 2014;190:1168 – a multicentric study on the performance of three immunodiagnostic tests for the diagnosis of latent tuberculosis infection in different groups of immunocompromised patients, published in *American Journal of Respiratory and Critical Care Medicine* (impact factor 12.996 in 2014) which has 158 citation in *Web of Science*.
- Bumbăcea et al. *Eur Respir J* 2012;40:990 – a consensus position statement issued by TBNET on risk of tuberculosis in transplant candidates and recipients, published in *European Respiratory Journal* (impact factor 6.355 in 2012) which has 159 citations in *Web of Science*
- Bodzenta-Lukaszyk et al. *Respir Med* 2011;105:674 – a randomized controlled clinical trial of non-inferiority of fluticasone/formoterol combination in one inhaler compared to same drugs given separate inhalers, published in *Respiratory Medicine* (impact factor 2.475 in 2011) which has 44 citation in *Web of Science*
- Steriade et al. *BMC Pulmonary Medicine* 2019;19:131 – a prospective cohort study on predictive factors on the non-invasive ventilation outcome in COPD

exacerbation patients, published in BMC Pulmonary Medicine (impact factor 2.813 in 2019) which has 11 citation in Web of Science

- Soare et al. Clin Rheumatol 2018;37:2391 – a cohort study on tuberculosis incidence in patients treated with TNFalpha blockers, published in Clinical Rheumatology in 2018 (impact factor 2.293) which has 9 citations in Web of Science.

The last section is dedicated to prospects of evolution and development of academic career.

I propose for the next period to achieve new abilities in thoracic ultrasound and bronchoscopy, simultaneously with the development of the bronchoscopy laboratory in Elias Hospital. I also want to extend the Pneumology service and the Acute Respiratory Unit to cover for the care needs of the patients that are referred to our service.

In the academic field I will continue to develop the OSCE exam and to disseminate it, with the approval of the University leadership, to other Disciplines, including the organization of a post-graduate course on examination in medical education. I will propose a significant update in Pneumology residency training by changing the curriculum, the subjects and the bibliography in order to accommodate the change in the activity of Pneumology physicians and to bring it up to date with latest information in the field. I would also like to propose a curriculum for Attestation in Acute Respiratory Medicine that will allow the dissemination of the knowledge and abilities of pulmonary physicians from Elias Hospital and eventually the opening of new Acute Respiratory Care Units across the country.

Finally, in the scientific field, after acquiring the position of PhD coordinator, I will develop three research directions:

- acute respiratory failure – role of oesophageal pressure monitoring, prognostic studies and retrospective identification of risk factors in SARS-CoV-2 infection
- airway disease (mostly severe asthma) – development of a state-of-the-art laboratory for multidimensional assessment of the airways (bronchial

hyperreactivity, airway inflammation, modern techniques of lung function measurement) and evaluation and eventually validation of new techniques of lung function measurement using a smartphone

- rare diseases – development of care units for rare diseases, of databases with these diseases and application for funding at the European Network for Rare Diseases