

**CAROL DAVILA UNIVERSITY OF MEDICINE  
AND PHARMACY BUCHAREST  
DOCTORAL SCHOOL  
MEDICINE**

**APPLIED MEDICAL RESEARCH AND  
INNOVATIVE THERAPEUTIC  
APPROACHES IN INFECTIOUS DISEASES**

**HABILITATION THESIS ABSTRACT**

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# **Applied medical research and innovative therapeutic approaches in infectious diseases**

## **– Habilitation thesis abstract –**

The coronavirus disease 2019 (COVID-19) pandemic has completely reshaped our approach to infectious diseases, in Romania and worldwide. The year 2020 was marked by a race against time, to study and understand the transmission, pathogenesis and treatment of the infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and while tremendous progress has been made, much is still left to learn. To this end, the scientific medical community has established a set of clear research priorities, to be addressed worldwide through applied medical research and to be integrated into the wider context of infectious diseases.

This habilitation thesis focuses on the role of the infectious disease specialist in identifying and establishing this particular set of relevant development pathways, in order to ensure that medical research can be translated into actionable clinical guidance.

The thesis describes some of my most relevant contributions to scientific, academic and professional activities, while outlining specific future medical research and development areas where timely intervention could positively redesign our understanding and our practice of infectious diseases.

In the era of evidence-based medicine, research is an integrated component of clinical practice. Throughout my career, I have focused on a set of research priorities directly relevant to the field of infectious diseases, a non-exhaustive list being comprised of: viral hepatitis, HIV infection, clinical and epidemiological surveillance of respiratory infections, novel antimicrobials, biofilm-driven infections, emerging diseases, and infection prevention and control.

My scientific activity has been guided by the principle that a research study always starts with a relevant clinical question. Therefore, my main research activities have been clinically-driven, and the results have been communicated to the medical community at well-established

infectious diseases conferences and in multiple articles published in high-impact peer-reviewed international journals.

Having started my medical activity as a resident in infectious diseases, I am now specialist in infectious diseases, certified in travel medicine, and completing my training in epidemiology as secondary specialty. This blend of specialties has given me the unique opportunity to become involved in multi-national surveillance programs such as the Global Influenza Hospital Surveillance Network (GIHSN), and Development of Robust and Innovative Vaccine Effectiveness (DRIVE), to be elected Romanian representative at the European Committee on Infection Control (EUCIC), and to act as faculty member in international educational projects such as the European AIDS Clinical Society Young Investigators (YING) professional network.

Teaching activities are at the core of academia. Throughout my teaching career, initially as Assistant Lecturer and later on as Associate Professor at the Department of Infectious Diseases, I have put great emphasis on participative learning and I have been actively engaged in mentoring students and medical residents, helping them navigate the clinical and research pathways. The challenges brought on by the COVID-19 pandemic have compelled us to rethink the educational process, shaping our online activities in order to focus less on passive teaching and more on active learning. Our teaching activities now include state-of-the-art information technology tools, as well as virtual and on-site clinical simulators, which all constitute opportunities to further improve and refine the learning process even beyond the scope of the current pandemic.

The habilitation thesis concludes by presenting a unique set of scientific, academic and professional development pathways focused on innovative treatment options in infectious diseases, as well as applied clinical research and multi-national surveillance of respiratory infections, COVID included. The implementation of these proposed research and development topics has the potential to increase the international visibility of the university, and to support new generations of physicians to become prepared both clinically and scientifically for the alert pace of modern medicine.