

## REVIEW

By

**Prof. Dr Yavor Enchev, MD, DSc, PhD**

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On a doctoral thesis on the topic of:

**“Impact of COVID-19 on Otorhinolaryngology”**

For the award of the educational and scientific degree “Doctor”

Field of Higher Education: 7. Healthcare and Sports

Professional Field: 7.1. Medicine

Scientific Speciality: 03.01.35 Otorhinolaryngology

**Author of dissertation:** Dr Kameliya Milcheva Korucheva

Form of PhD training: Full-time

Department: “Neurosurgery and ENT Diseases”; Academic Council of ENT Diseases

**Scientific Supervisor:** Prof. Dr Nikolay Sapundzhiev, MD, PhD

### **I. General remarks and comments on the procedure**

By Order No. R-109-126 from 11.03.2026 of the Rector of MU “Prof. Dr Paraskev Stoyanov” - Varna, I was appointed Chair of the Scientific Jury to prepare an opinion regarding Dr Kameliya Milcheva. The defence procedure fully complies with the requirements of the current regulatory framework in the Republic of Bulgaria - the Law on Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Implementation, as well as the Regulations of the Medical University of Varna.

Dr Kameliya Milcheva was enrolled in doctoral studies by Order № R-109-56 dated 27.01.2023 of the Rector of the Medical University of Varna. The study was approved by the Ethics Committee for Scientific Research at MU - Varna (Protocol No. 118/23.06.2022). She has completed her individual doctoral plan and has successfully passed all required examinations. Regular attestations have been conducted, all with positive evaluations. The planned program has been completed on schedule, and the scientometric indicators have been fulfilled. The completed dissertation was presented to the Extended Internal Scientific Jury on 20.02.2026. The PhD candidate was granted the right to defend the dissertation by Order No. R-109-126/11.03.2026. The dissertation, its abstract and the required documents and materials related to the official defence procedure fully meet the legal requirements.

### **II. Biographical data**

Dr Kameliya Milcheva graduated in Medicine in 1995 from the Medical University “Prof. Dr Paraskev Stoyanov” - Varna. She began working as a physician in 1996 at the Emergency Medical Centre in Aksakovo. In 2005, she joined the ENT Clinic at University Hospital “St. Marina” - Varna as a resident. She acquired the speciality of “Otorhinolaryngology” in 2009 and was appointed as an ENT specialist in the clinic, as well as a part-time assistant at the Medical University - Varna. In 2019, she won a competition for an assistant position at the Department of Neurosurgery and ENT Diseases and began her PhD

training in Otorhinolaryngology in 2023. She is a member of the Bulgarian National Society of Otorhinolaryngology, Head and Neck Surgery, and the Bulgarian Association of Healthcare Professionals.

### **III. Relevance of the problem**

The impact of the COVID-19 pandemic on otorhinolaryngology is highly relevant due to the speciality's direct exposure to the upper airway, which represents a primary site of viral transmission. Otorhinolaryngologists face increased occupational risk, particularly during aerosol-generating procedures such as endoscopy and tracheostomy. The pandemic has also led to significant disruptions in clinical practice, including reduced elective care, delayed diagnoses, and changes in patients' profiles. Understanding these effects is essential for improving clinical protocols, ensuring continuity of care, and enhancing preparedness for future airborne infectious outbreaks.

### **IV. Structure and characteristics of the dissertation**

The dissertation is well structured and includes all main components: introduction, literature review, aim and objectives, materials and methods, results, discussion, conclusions, contributions, and bibliography. It is 204 pages long and includes 84 tables, 65 figures and 1 appendix.

**The literature review** spans over 32 pages and examines the characteristics of SARS-CoV-2 infection. It includes a historical overview of pandemics from antiquity to the present, as well as COVID-19 virology, epidemiology, diagnostics, and clinical presentation, with a focus on the ENT manifestations. Aerosol-generating procedures in otorhinolaryngology and organisational changes in ENT units during the pandemic are reviewed. Special attention is given to the Bulgarian context and to rare complications such as rhino-orbito-cerebral mucormycosis (ROCM).

The analysis is primarily based on scientific publications from the past two decades, while also referencing historically significant foundational works. The scope and content demonstrate that the doctoral candidate is thoroughly familiar with the subject, and the conclusions drawn from the literature review provide a solid basis for the conducted research.

The dissertation aims to investigate and analyse the impact of the COVID-19 pandemic on the activity of a tertiary ENT clinic in Bulgaria by comparing hospital activity before and during the pandemic (2018-2021). A survey study was conducted to assess the experiences and opinions of ENT physicians regarding changes in clinical practice. An additional objective is to evaluate the incidence and structure of rare but clinically significant complications such as rhino-orbito-cerebral mucormycosis (ROCM). Five well-defined and clearly formulated tasks have been set.

**Material and methods** are based on a retrospective, single-centre, descriptive analysis investigating inpatient activity in a tertiary ENT clinic at St. Marina University Hospital, Varna, from January 1, 2018, to December 31, 2021. Descriptive statistics on hospital activity were systematically compiled in chronological order for the study period. A comparative analysis was performed between the pandemic period and a corresponding pre-pandemic interval, enabling the identification of significant statistical patterns. Furthermore, a series of clinical cases of COVID-19-associated rhino-orbito-cerebral mucormycosis is presented. Additionally,

a national survey among Bulgarian otorhinolaryngologists was developed and conducted for the first time.

The volume and the quality of the material are sufficient to achieve the dissertation objectives. The methods used for data processing and analysis are reliable, modern and appropriate.

**Results** are presented in detail over 86 pages. They are sufficient in scope, aligned with objectives, and suitable for statistical analysis. The findings are original and systematically analysed, with identifiable statistical patterns. The study confirms globally observed organisational shift: prioritisation of oncological and emergency care, restriction of elective procedures, rapid implementation of safety measures, and the need for long-term support for the mental health and professional resilience of medical staff.

**The discussion** spans 33 pages and provides a thorough comparison with existing literature. The bibliography includes 320 sources - 8 in Cyrillic and 312 in Latin script.

**The conclusions** are clearly formulated and correspond to the study objectives. Six contributions are well defined. The dissertation proposes an original scientific model for assessing the impact of the pandemic on otorhinolaryngology.

**The abstract** is prepared in accordance with the institutional requirements and accurately reflects the main results, conclusions, and contributions. It consists of 76 pages, including 20 tables and 24 figures.

#### V. Evaluation of the publications and personal contribution of the doctoral student

Dr. Milcheva is a lead researcher in the joint project between the Faculty of Medicine and the Faculty of Public Health at MU - Varna titled "Impact of COVID-19 on Otorhinolaryngology". She actively participated in developing the national survey. Dr Milcheva presents 3 full-text scientific publications - 2 in peer-reviewed international journal and 1 in a Bulgarian journal, as well as 2 presentations at Bulgarian national congresses and 1 e-poster at a European scientific forum.

#### VI. Conclusion

The doctoral thesis "Impact of COVID-19 on Otorhinolaryngology" by Dr Kameliya Milcheva presents significant results and valuable theoretical, methodological, and practical conclusions, representing an original contribution to science. It meets all legal and institutional requirements, and no plagiarism has been found.

The dissertation demonstrates that Dr Milcheva possesses in-depth theoretical knowledge and professional competence in the field, as well as the skills necessary for independent scientific research. The results, analysis, conclusions, and contributions demonstrate her personal input. The dissertation is scientifically relevant, and the conclusions drawn have real practical application.

Based on the above, I give my positive evaluation for the doctoral thesis and propose to the members of the venerable Scientific Jury to award the educational and scientific degree "Doctor" in Otorhinolaryngology to Dr Kameliya Milcheva.

Date: 25.03.2026  
Varna

Sincerely,  
Prof. Dr Y

Заличено на основание чл. 5,  
§1, б. „В“ от Регламент (ЕС)  
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