

TO

The Chairman of the Scientific Jury

under the procedure for the acquisition of ESD "Doctor"

PhD Program "Management of Health Care"

Medical University – Varna "Prof. Dr Paraskev Stoyanov"

## **OPINION**

by Assoc. Prof. Dima Krumova Tsanova, MD, PhD

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### **Regarding the procedure for the acquisition of ESD "Doctor"**

**Field of Higher Education: 7. Health and Sports**

**Professional Field: 7.4. Public Health**

**PhD Program: Management of Health Care**

**Author: Nela Georgieva Kalpakchieva**

**Form of Study: Full-time doctoral program**

**Dissertation Title: "Knowledge, Attitudes and Practices Related to the Control of Cross Infections in Dental Laboratories"**

**Scientific Supervisor: Prof. Klara Dokova, MD, PhD**

I present this opinion in my capacity as a member of the Scientific Jury, appointed by Order of the Rector of MU–Varna No. R-109-62/27.01.2026. I declare that I have no conflict of interest, including co-authorship, with the doctoral candidate Nela Georgieva Kalpakchieva.

### **General Presentation of the Procedure**

Nela Georgieva Kalpakchieva was enrolled as a full-time doctoral student in the PhD Program "Management of Health Care", Professional Field 7.4 Public Health, at the Department of Healthcare, Faculty of Public Health, Medical University of Varna, by Order No. R-109-94/01.02.2023, with scientific supervisor Prof. Klara Dokova, MD, PhD, and dissertation topic "Knowledge, Attitudes and Practices Related to the Control of Cross Infections in Dental Laboratories". She has successfully passed the doctoral minimum examinations and, based on a decision of the Faculty Council of the Faculty of Public Health, MU–Varna, she has been deregistered with the right to defence by Order of the Rector No. R-109-62/27.01.2026, having fulfilled the individual study plan and acquired the required credits.

The set of materials submitted to me in electronic format complies with the regulatory requirements. Based on the submitted documents, I declare that the procedure and conditions for the

defence of a dissertation for awarding the PhD degree have been complied with, in accordance with the Law for the Development of Academic Staff in the Republic of Bulgaria and the internal regulations of MU–Varna.

### **Brief Biographical Data of the Doctoral Candidate**

The doctoral candidate and lecturer, Nela Kalpakchieva, holds a Professional Bachelor's degree in Dental Technology, a Bachelor's degree in Management of Health Care, and a Master's degree in Management of Health Care. In 2025, she was enrolled in the specialty Public Health.

From 2012 to 2018, she worked as a dental technician in a specialised dental laboratory, and since 2013, she has been a part-time lecturer at MU–Varna. In 2018, she was appointed as a lecturer and is currently a member of the team of the Medical College, Dental Technician Training Sector, at the Medical University of Varna. She is proficient in English and Russian.

**The dissertation** consists of 161 pages and includes 39 tables, 34 figures, and 3 appendices. All the basic elements of the generally accepted structure for presenting a dissertation are included: introduction – 2 pages; literature review – 42 pages; aim and objectives – 1 page; materials and methods – 9 pages; results and discussion – 91 pages; conclusions, contributions and appendices – 6 pages; bibliography – 14 pages, including 157 references in Latin script, 67 of which (37.64%) were published after 2020.

### **Relevance of the Topic and Appropriateness of the Aim and Objectives**

The problem of infections in dental laboratories is extremely relevant, especially in the context of increased requirements for biological safety, globalisation of healthcare services, and the lessons learned from recent pandemic crises. Dental laboratories are a key link between clinical dental practice and the final patient, yet they are often underestimated in terms of infection control.

Dental technicians work daily with impressions, dentures, crowns, bridges, and other dental constructions that come into direct contact with saliva, blood, and oral tissues. These materials may carry pathogenic microorganisms, including bacteria, viruses, and fungi, such as hepatitis B and C viruses, HIV, tuberculosis, influenza viruses, and coronaviruses. According to data and recommendations of the World Health Organisation, healthcare workers, including those outside the direct clinical environment, are exposed to an increased risk of occupational infections in the absence of adequate control measures.

An additional risk factor is aerosol contamination. Grinding, polishing, and processing of prosthetic constructions release fine dust particles that may contain microorganisms and remain suspended in the air. Under conditions of poor ventilation and insufficient personal protection, this significantly increases the risk of airborne infections.

I assess as highly relevant and appropriate the conducted study on knowledge, attitudes, and practices related to the control of cross infections in dental laboratories in Bulgaria.

**The literature review** covers 42 pages and includes three tables. It examines issues related to international policies and recommendations for infection prevention and control in the field of dental medicine, with a focus on dental laboratories, as well as the regulatory framework in Bulgaria

governing infection prevention and control in dental laboratories. The risks of cross-infection in these laboratories are analysed in detail, along with the knowledge, attitudes, and practices related to infection prevention and control in dental laboratories. Attention is also given to the professional training of dental professionals in infection control.

A positive quality of the work is the formulation of conclusions drawn from the literature review by the doctoral candidate. These conclusions also provide a basis for defining the aim of the dissertation, namely to study the knowledge, attitudes, and practices related to the control of cross-infections in dental laboratories in Bulgaria.

In pursuing this aim, Nela Kalpakchieva has set five objectives and formulated five research hypotheses related to the current state of the problem of infections in dental laboratory practice in Bulgaria and the need for professionally organised educational interventions to improve awareness and practice regarding this issue.

### **Research Methodology**

The materials and methods used are described in detail and provide an objective basis for achieving the stated aim and objectives. The precision in presenting the information in this part of the dissertation is noteworthy and indicates the doctoral candidate's commitment to the quality of the results obtained. A descriptive cross-sectional study was employed, using a specially developed questionnaire to assess the knowledge, attitudes, and practices related to infection control among dental technicians in Bulgaria. In addition, a survey was organised and conducted on disinfection and communication practices related to infection control among practising dentists. The questionnaires were distributed via the Google Forms online platform. The sampling procedure is described with exceptional precision. Appropriate statistical methods were used for the processing and analysis of the obtained results. The selected, presented, and applied methodological approaches enabled the doctoral candidate to fulfil the research objectives and achieve the stated aim.

The presented **results** of the dissertation demonstrate that the study was not only well planned but also successfully implemented. The data are clearly described and well-illustrated. I highly appreciate the type and style of the figures presenting the results, which facilitate orientation within the work, as well as the precise descriptions of the figures.

The research results are structured into three main sections: 1) awareness of the risks of cross-infection and control measures; 2) infection control practices in the laboratory; 3) attitudes toward infection control.

Concerning the first section, the results show that approximately half of the participants (54.8%) rate their level of awareness regarding the control of cross-infections as "excellent" or "very good," and 75.2% of the respondents correctly identify the definition of cross-infection. It is noteworthy that fewer than 20% of dental technicians report having received training on the topic after completing their formal education, and only 5.9% had undergone training in the previous year. The assessment of awareness related to written protocols in laboratories for key areas of infection control indicates a low level of awareness, particularly with regard to post-exposure policy (9.9%) and protocols for handling sharp instruments (19.7%).

With regard to infection control practices in the laboratory, a large proportion of respondents were found to treat contaminated impressions solely by rinsing them under running water (17.7%), while 56.3% of dental technicians partially comply with the disinfection protocol. It was also found that 52.2% of participants do not routinely disinfect materials before sending them from the laboratory to the dental clinic. The analysis shows that respondents with greater professional experience tend to be more negligent regarding their physical protection and the use of personal protective equipment. The proportion of dental technicians with up to 10 years of professional experience who use all personal protective equipment is 64.6%, which is almost twice as high as that among respondents with more than 11 years of experience (34.3%). Regarding hand hygiene, the results show that respondents most frequently wash their hands when they are visibly soiled (77.8%). The smallest proportion of dental technicians reported performing hand hygiene when leaving the laboratory (61.1%). Only one quarter of respondents do not perform hand hygiene after touching objects that may be contaminated with blood, saliva, or respiratory secretions. Low vaccination coverage against hepatitis B was also identified—only 43.8% of respondents reported being vaccinated against the virus.

The assessment of attitudes toward infection control shows that 26.7% of respondents rate the individual risk of cross-infection to which they are exposed during their work as “high,” 35.2% perceive their individual risk as “low,” and only three respondents (1.5%) believe that no such risk exists for them. The results indicate that dental technicians who apply the full protocol for disinfection of dental impressions are most often inclined to rate the implementation of infection control measures in their laboratories as “excellent” or “very good” (69.2%). A positive attitude toward periodic infection control training was identified among respondents, with 79.3% stating unequivocally that they support the introduction of such training.

Regarding methods for providing information about the disinfection status of materials sent to the dental laboratory, dentists most often inform the laboratory verbally (41.0%). Slightly more than one quarter of respondents (26.8%) confirm that they place a label on the packaging containing information about the disinfection status. It was found that only 47.5% of dentists confirm that they disinfect clinical materials before sending them to the dental laboratory.

The obtained results are discussed over 15 pages of the dissertation, where the author’s own findings from the four conducted studies are examined and synthesised. This demonstrates the doctoral candidate’s well-developed analytical approach and proficient use of the scientific literature related to the topic of the dissertation. A comprehensive, concise concluding discussion is presented, summarising the results. Based on the obtained results and the discussion presented, it can be concluded that the doctoral candidate has a strong command of the methods used and presents the data skilfully and clearly.

Eleven conclusions are formulated, which logically reflect the obtained results. The conclusions are precise and comprehensive and accurately correspond to the results related to the stated research objectives.

## **Contributions and Significance of the Study for Science and Practice**

I accept the contributions formulated by the doctoral candidate. A total of eight contributions are identified, six of which are of a theoretical and cognitive nature and two of a practical and applied nature.

### **Assessment of Publications Related to the Dissertation**

The results of the dissertation have been published in two peer-reviewed articles, in which Nela Kalpakchieva is the first author.

### **Abstract**

The abstract is presented in Bulgarian and meets the requirements in terms of both content and format. It accurately reflects the essence of the dissertation. It is illustrated with highly informative figures and tables and presents the methodology, the main results together with their discussion, as well as the corresponding conclusions, contributions, and publications related to the study.

### **Critical Remarks and Recommendations**

The dissertation would benefit from wider dissemination of the results through additional publications.

### **Conclusion**

The dissertation of Nela Georgieva Kalpakchieva, “Knowledge, Attitudes, and Practices Related to the Control of Cross-Infections in Dental Laboratories,” contains scientific-theoretical and scientific-applied results that represent an original contribution to science. The work complies with all the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria (ADASRB) and the Regulations for its Implementation. The submitted materials and dissertation results meet the specific requirements of the higher education institution.

The dissertation demonstrates that the doctoral candidate, Nela Georgieva Kalpakchieva, has mastered the relevant methodologies and is capable of analysing and synthesising results and formulating conclusions. Based on the above, it can be concluded that the two qualification objectives of the PhD program - educational and scientific - have been fulfilled, and the completed written work merits a well-deserved positive evaluation.

In view of the foregoing, I give my positive assessment and propose that the esteemed members of the Scientific Jury award the educational and scientific degree “Doctor” to Nela Georgieva Kalpakchieva in the PHD program in Management of Health Care, Professional Field 7.4 Public Health.

24.02.2026

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Заличено на основание чл. 5,  
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Assoc. Prof. Dima Tsanova, MD, PhD