REVIEW

by Assoc. Prof. Milena Krasimirova Angelova-Vladimirova, PhD
National Center of Public Health and Analyses, Sofia
on the dissertation of Dragomir Tsvetanov Ivanov
for the award of the educational and scientific degree "Doctor"

Topic: "Infection Prevention and Control: Public Health Challenges and Priority Solutions through the One Health Approach"
Scientific supervisors: Prof. Desislava Vankova, MD, DSc
Prof. Tsonko Paunov, MD, PhD

According to Order No. R-109-261/28 July 2026 of the Rector of the Medical University "Prof. Dr. Paraskev Stoyanov" – Varna, I was appointed a external member of the scientific jury for the defence of the dissertation of Dragomir Tsvetanov Ivanov, a full-time doctoral student in field of higher education 7. Health Care and Sports, professional field 7.4. Public Health, doctoral programme "Public Health Management".

This opinion has been prepared in accordance with the requirements and criteria of the Academic Staff Development Act in the Republic of Bulgaria, the Regulations for its implementation, and Article 68(1) of the Regulations on the Development of the Academic Staff at the Medical University "Prof. Dr. Paraskev Stoyanov" – Varna, as well as on the basis of an analysis of the documentation submitted by the candidate.

Biographical information

Dragomir Tsvetanov Ivanov was born on 15 July 1979 in Vidin. He completed his secondary education in Kula in 1993. In 2003, he obtained a Master's degree in Veterinary Medicine from the Faculty of Veterinary Medicine at the University of Forestry, Sofia. He also holds a Master's degree in Public Health and Health Management from the Medical University – Pleven. Since 2021, he has been a full-time doctoral student in the doctoral programme "Public Health Management" at the Department of Social Medicine and Health Care Organisation, Medical University "Prof. Dr. Paraskev Stoyanov" – Varna. The Doctoral Student's professional journey has been marked by continuous growth and advancement – from veterinary surgeon to sales management of disinfectants, feed additives, veterinary products, veterinary products and medical equipment. He has managerial experience, related to prevention and control of infections. His keen interest in the field of public health and drive for self-improvement have prompted him to focus on and consciously seek information about the "One Health" approach and its implementation within the Bulgarian context.

1. General characteristics and relevance of the dissertation

The submitted dissertation addresses a topical and socially significant issue: the prevention and control of infections and antimicrobial resistance from the integrated perspective of the One Health approach. The topic is highly relevant given the increasing frequency and complexity of infectious threats, the spread of resistant microorganisms among humans, animals, food and the environment, and the need for sustainable intersectoral cooperation

The scientific rationale is well substantiated. The author proceeds from the understanding that infections associated with medical and veterinary health care cannot be managed effectively through isolated sectoral actions. Placing infection prevention and control within the human–animal–environment framework gives the work an interdisciplinary character and links it directly to the priorities of public health, patient safety, veterinary practice, food-chain safety and health security.

In Bulgaria, systematic data on the awareness, attitudes and practices of human-health and veterinary professionals regarding One Health are limited. The study therefore fills an important information gap and provides a basis for educational, organisational and policy decisions. The author of the dissertation presents, for the first time in Bulgaria a study regarding the level of awareness of the One Health concept among key professional communities in human and veterinary medicine, considered in relation to their preparation, professional experience and participation in training, while also tracing the emerging opportunities for communication between the sectors.

2. Structure and content

The dissertation comprises 186 pages and includes 12 tables, 54 figures, of which 2 are conceptual models, and an appendix in two parts. The bibliography contains 350 sources: 8 in Cyrillic and 342 in Latin script. The structure is logical and follows the established requirements for a dissertation: introduction and literature review; aim and objectives; materials and methods; results and discussion; conclusions; scientific and practical contributions; recommendations; and conceptual models.

The literature review is broad in scope and traces the historical development and contemporary dimensions of the One Health concept, its relationship with antimicrobial resistance, zoonoses and health care-associated infections. Scientific publications, international strategic documents and regulatory sources have been used. The predominance of up-to-date international sources demonstrates a sound knowledge of the international scientific context.

3. Aim, objectives and methodology

The aim is clearly formulated: to study and analyse the knowledge, attitudes and practices of professional communities in health care regarding infection prevention and control in the context of the One Health concept. Five interrelated objectives have been set to achieve this aim, encompassing theoretical and regulatory analysis, an empirical study among professionals in human and veterinary medicine, and the development of a conceptual model.

The study was conducted from March 2023 to September 2024 and was approved by the Research Ethics Committee at the Medical University – Varna under Protocol No. 128/02.2023. It included 168 human-health professionals from four health care establishments in three regions of Northern Bulgaria and 60 veterinarians from all 28 administrative regions of the country. The methods included structured questionnaires, documentary and comparative analysis, descriptive and inferential statistics, the χ^2 test, and Spearman's non-parametric correlation analysis, with the level of significance set at $p < 0.05$.

The methodological approach is appropriate to the stated aim and objectives. I positively assess the inclusion of two professional communities, which permits a comparative evaluation of shared problems and sector-specific deficiencies. The questions are organised into thematic blocks

concerning organisation, practices and recommendations, while the analysis covers disinfection, sterilisation, hand hygiene, personal protective equipment, zoonoses, antimicrobial resistance and intersectoral coordination.

4. Principal results and their evaluation

The results reveal actual deficiencies in the organisation and practice of infection prevention and control. Among veterinary professionals, the study identified incomplete provision of disinfectants, a lack of systematic microbiological control, irregular use of personal protective equipment by some respondents, and insufficient training in asepsis and antisepsis. More than one-third do not follow an algorithm when a particularly dangerous infection or zoonosis is suspected.

In human medicine, the availability of personal protective equipment is relatively good, but there are shortcomings in monitoring its use and incomplete implementation of disinfection programmes. Compliance with the generally accepted steps for hygienic hand disinfection ranges from 46.7% to 66.7% across the health care establishments studied, demonstrating the need for systematic training, observation and feedback.

Of particular significance is the finding of limited awareness of the One Health concept: insufficient awareness was reported among 80% of veterinary professionals and among 84.4–100% of human-health professionals in the individual health care establishments. The results also demonstrate limited effectiveness of communication and cooperation between the two sectors, as well as a tendency to shift responsibility for antimicrobial resistance to other professional fields.

The discussion compares the findings with evidence from the scientific literature and international practice. The author correctly identifies the need for regular training, standardised algorithms, monitoring, institutional support and common mechanisms for information exchange. The analysis does not remain merely descriptive but is developed into applicable recommendations and models.

5. Scientific and applied scientific contributions

I accept the contributions formulated by the author. The most significant may be summarised as follows:

- The first empirical comparative questionnaire survey in Bulgaria was conducted among professionals in human and veterinary medicine concerning their knowledge, attitudes and practices in infection prevention and control, antimicrobial resistance and the One Health approach.
- Professionally and institutionally determined differences and deficiencies were identified in awareness, training, implementation of hygiene and anti-epidemic measures, and intersectoral coordination.
- Specific areas were identified for improving knowledge and practices among human-health and veterinary professionals, including asepsis, antisepsis, microbiological control, the use of personal protective equipment, zoonosis management and the prudent use of antimicrobial agents.
- A conceptual model was developed for integrating the One Health approach at national and institutional level, with the participation of human health care, veterinary medicine and the environmental sector.

- A process-and-factor model was proposed to improve the effectiveness of infection prevention and control and to limit antimicrobial resistance through coordination, training, monitoring and the transfer of good practices.
- Practical recommendations were formulated for integrating One Health into university curricula, postgraduate education, in-house training and institutional policies.

The contributions are cognitive, methodological and distinctly practical and applied in nature. The models developed may serve as a framework for subsequent validation and for planning intersectoral policies and training interventions.

6. Publication activity related to the topic

The dissertation abstract lists four publications related to the topic of the dissertation, published between 2023 and 2025. They examine the One Health approach in veterinary and human medicine, awareness among key professional groups, and the possibilities for applying integrated algorithms. The publications demonstrate continuity of scientific interest and provide the necessary public presentation of the principal parts of the dissertation research. The dissertation abstract reflects the principal sections, results, conclusions and contributions of the dissertation and provides a sufficiently clear account of the research conducted. Literary sources are cited, which do not need to be published within it.

7. Critical comments and recommendations

The critical comments do not diminish the value of the work but identify opportunities for its future development:

- The sample of human-health professionals is limited to four health care establishments in three regions and is not nationally representative. The author correctly acknowledges this limitation, but it should be taken into account when generalising the results at national level.
- The data are based predominantly on self-assessment and self-reported practices and are therefore susceptible to information bias and socially desirable responses. Future studies would benefit from combining questionnaires with observation, practice audits and objective indicators.
- The groups differ in size and professional composition. More detailed stratification by position, type of health care establishment, length of professional experience and region would enable more precise identification of the factors associated with knowledge and practices.
- The considerable number of figures supports visualisation but in places it leads to a fragmentation of the presentation. In a future publication, some closely related results could be combined in comparative tables or summary figures.
- I recommend to the author to continue the research with the aim of improving the awareness among professional communities by expanding the research methods, beyond the survey method, applied so far.

I would put the following question to the doctoral candidate: What are the first three realistic institutional steps for the pilot implementation of the proposed One Health model in Bulgaria, and which measurable indicators would you use to evaluate their effect after one year?

8. Conclusion

The dissertation of **Dragomir Tsvetanov Ivanov** constitutes an independent, up to date and complete scientific study. The stated aim and objectives have been achieved, the methodology applied is appropriate, the results have been analysed and discussed, and the conclusions derive from the study conducted. The work contains original scientific and practical contributions and proposes an applicable framework for improving infection prevention and control and limiting antimicrobial resistance through the One Health approach.

The submitted materials meet the requirements of the Academic Staff Development Act in the Republic of Bulgaria, the Regulations for its implementation, and the relevant internal rules of the Medical University "Prof. Dr. Paraskev Stoyanov" – Varna for the acquisition of the educational and scientific degree "Doctor".

On this basis, I give a **positive** evaluation of the dissertation and propose that the esteemed members of the scientific jury vote to award Dragomir Tsvetanov Ivanov the educational and scientific degree "Doctor".

Date: 11.09. 2026

Sofia

Prepared by:
Assoc. Prof. Milena Vladimirova, PhD

Signature: ...

Заличено на основание чл. 5, §1, б. „В“ от Регламент (ЕС) 2016/679