

**TO THE CHAIRMAN OF THE SCIENTIFIC JURY  
DETERMINED BY ORDER No. R-109-314 of 21.07.2025  
TO THE RECTOR OF THE MEDICAL UNIVERSITY - VARNA**

**REVIEW**

**by Colonel Professor Nikola Georgiev Shopov, MD, DSc  
Professor at the Department of Aviation and Marine Medicine of the MMA - Sofia**

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| <b>Regarding:</b> | Dissertation for the acquisition of the educational and scientific degree of "Doctor", Field of higher education: 7. "Healthcare and Sports", Professional field: 7.1. "Medicine" in the scientific specialty "Disaster Medicine". |
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Author of the dissertation: **Assistant Professor Yasen Yonkov Georgiev, MD**

Topic of the dissertation:

**Readiness for protection and response of medical institutions in Varna region at risk of  
natural and anthropogenic hazards**

According to a decision under protocol No. 247/17.07.2025 of the Faculty Council and report with entry No. 104-1061/21.07.2025 of the Dean of the Faculty of Public Health, and on the basis of Order No. 109-314/21.07.2025 of the Rector of the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna, I have been elected as an external member of the Scientific Jury (SJ) under the procedure for public defense of a dissertation work for the acquisition of the educational and scientific degree "doctor" with candidate assistant Yasen Yonkov Georgiev, MD. By Protocol No. 1/25.07.2025 of a meeting of the SJ, I have been appointed as a reviewer regarding the procedure.

**I. Presentation of the procedure**

The documents provided to me by the doctoral student are in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) and the Regulations for its Implementation (RILDASRB), as well as with Art. 69 of the Regulations for the Development of the Academic Staff (RDAS) at MU - Varna. They meet the requirements of the procedure for acquiring the ESD "doctor". I have no comments or remarks regarding the documents presented.

The assessment of the doctoral student and the dissertation is complex and includes the doctoral student's research and practical activities, the structure, scientific characteristics and scientific and applied results of the dissertation, as well as an assessment of the abstract, in accordance with Art. 27 of the RILDASRB.

As confirmation of meeting the minimum national requirements for scientific and teaching activities in accordance with Art. 69, para. 4 of the RDAS at MU - Varna, the candidate presents an information card from the National Center for Scientific and Technical Research and Articles related to the dissertation, from which it is evident that it meets the minimum scientometric requirements for acquiring the ESD "doctor".

## **II. General presentation of the doctoral student**

### **1. Brief information about his professional path**

Yasen Yonkov Georgiev, MD was born in 1994 in the city of Varna, where in 2013 he completed his secondary education at the "A. S. Pushkin" Secondary Education and Training School. In 2019, he graduated as a Master of Medicine from the Medical University - Varna. During his studies (from 2016 to 2018), he worked as a demonstrator at the Department of "General and Operative Surgery". From 2020 to the present, he is an assistant professor at the Department of "Disaster Medicine and Marine Medicine" at the Medical University - Varna.

### **2. Scientific development**

Over the years, the doctoral student has gone through the following stages of scientific development:

- in 2019, he acquired the ESD "Master" in Medicine;
- from 2020 to 2025, he is a doctoral student in "Disaster Medicine";
- from 2020 to 2025, he is a specialist in "Disaster Medicine and Catastrophes".

### **3. Scientific research and practical activity**

Dr. Georgiev's publication activity includes 10 scientific articles in medical journals. He also has numerous participations in international and national medical congresses and conferences with oral presentations.

The main scientific directions to which his research studies are directed are:

1. Challenges facing public health in the context of a health crisis;
2. Challenges facing the health system;
3. Various aspects of biomedicine;
4. Problematic aspects of travel medicine;
5. Medical insurance for sea travelers.

Over the years, the doctoral student systematically and purposefully improves his or her professional qualifications and acquires extensive theoretical and practical training by completing a number of courses for continuing medical education and qualification, such as:

1. Advanced online course "Working with ArcGIS Online" in 2024;
2. Completed online course "Digital Skills (Intensive Training)" under project BG05M2OP001-2.016-0025;

3. Course "Training of Instructors" - University Center for Maritime Health, certificate from the Executive Agency "Maritime Administration";

4. Course "Assessment, Testing and Certification of Seafarers" - University Center for Maritime Health, certificate from the Executive Agency "Maritime Administration";

5. Course "Disaster Response and Consequence Management for Radiological Incident Course, CMDR COE - 2025

6. Winner in the "Travel" category of the world-famous photo competition Sony World Photography Awards 2015.

#### **4. Participation in projects**

Since 2024, Dr. Georgiev has been a participant in the national project No. 24025 "Application of geographic information systems for assessing health inequalities in Bulgaria", which is funded by the Science Fund.

#### **5. Awards**

In 2019, Dr. Georgiev received the "Award for Active Student Activity" from the Rector of the Medical University - Varna.

#### **6. Teaching activity**

Dr. Georgiev's teaching activity began in 2020. As an assistant, he conducts classes on "Disaster Medicine" in Bulgarian (BG) and English (EN) to students of "Medicine" and "Healthcare Specialists" and "Health Management". He also teaches in the SID on "Emergency Medical Assistance during Disaster Situations" - BG/EN, as well as in the SID "First Aid in the Home and Office" - BG/EN and the SID "Marine Incidents" - BG/EN.

### **III. Characteristics and evaluation of the dissertation**

#### **1. Content and structure of the dissertation**

The dissertation submitted to me for evaluation on the topic "Readiness for protection and response of medical institutions in the Varna region at risk of natural and anthropogenic hazards" with the author Assistant Professor Yassen Georgiev, MD is structured in 150 pages as follows:

- Table of contents, abbreviations and lists of tables, figures, graphs and appendices – 7 pages;

- Introduction and relevance of the problem – 2 pages;

- Literature review and conclusions from the review – 39 pages;

- Purpose; tasks; hypotheses; material and methods – a total of 8 pages;

- Own research – 60 pages;

- General conclusions, scientific contributions and publications related to the scientific work – 3 pages;

- Bibliography – 10 pages;

- Appendices – 20 pages.

The thesis in the dissertation is supported by 18 tables, 4 figures and 2 graphs, and the materials are illustrated with 5 appendices.

The bibliography includes 156 literary sources, of which 12 are in Cyrillic and 144 in Latin. Of these, 78 (50%) are from the last 10 years. The bibliography definitely speaks of the relevance of the scientific data used and cited studies. Despite the significant volume of the literature review, only 12 studies in it are by Bulgarian authors, and the lack of studies by Bulgarian authors confirms the thesis about the relevance of this problem in Bulgaria and the need for studies in this area.

In summary, it can be assumed that the dissertation work is presented in a form and volume that complies with the requirements of Art. 27, para. 2 of the RILDASRB. It was prepared in compliance with the requirements for the ratio between the individual sections, it is written in clear, scientific language and is grammatically sound.

## **2. Relevance and necessity of the dissertation development**

In recent years, there has been an increase in the occurrence of disaster situations on a regional, national and international scale. This is also associated with an increase in the risks to the health and well-being of a large contingent of the population and an excessive burden on the system for combating these accidents. Healthcare institutions, especially hospitals, play a key role in this system, as they play a crucial role in responding to natural and anthropogenic disasters. Natural disasters such as earthquakes, hurricanes, floods and forest fires, as well as those caused by human activity such as terrorist attacks, wars, pandemics, etc., can interrupt the work of hospitals, which leads to increased risk for patients, staff and the population. The readiness of hospitals to respond to natural and man-made disasters is crucial for reducing the risks associated with these events.

These facts objectively speak of the significance of this problem and undoubtedly support the thesis of the need to study the consequences of the occurrence of large-scale disasters, as well as identify objective methods for research and increase the readiness of the population and the health system to respond quickly and adequately in such situations. It is the implementation of comprehensive disaster protection plans and their annual updating that can reduce the risks associated with natural and anthropogenic hazards and ensure the provision of safe and effective health services to society and individual communities.

It can be said with confidence that the healthcare system is an important element of the country's national security, and that hospital preparedness is an integral part of disaster management. The dissertation thesis examines and proves that proper management of hospital resources is essential for meeting the needs of affected individuals. The dissertation can undoubtedly be perceived as a scientific foundation that identifies problematic aspects and provides the basis for developing working algorithms to increase the readiness and effectiveness of hospital facilities in solving tasks related to the high needs and challenges that have arisen as a result of natural and anthropogenic disasters and crises.

### **3. Knowledge of the problem**

The literature review is skillfully written. Based on the fact that there are a large number of scientific sources available, which can hardly be systematized in one place, the doctoral student includes in each specific study some of the significant literary sources related to the topic of the experimental studies that he has presented. The presentation in the literature review has a logically complete form and clearly presents the discussed topics in their historical development and evolution of the problems.

The doctoral student demonstrates excellent knowledge of the topic, along with skills for critical analysis of still unresolved problems in the study and assessment of the readiness of the population and medical institutions to respond to crises. It is evident that the author knows the problem in detail, both at a conceptual and theoretical level, and from a clinical-practical, social and experimental point of view.

Based on the examination of the literary sources, at the end of the literary review, Dr. Georgiev logically formulates 11 conclusions, which I perceive positively, and I will allow myself to emphasize those that define the need for hospitals to have updated and approved disaster protection plans, the need for specific training of hospital staff and increasing the awareness of the population about responding to disasters and crises with a large number of victims.

These conclusions once again clearly emphasize the relevance of the problem examined in the dissertation and the need for the research conducted by the dissertationist.

### **4. Goal, tasks and methodological approach**

As a result of the scientific review, Dr. Georgiev logically derived a clear goal – to study the preparedness for protection and response of medical institutions in the Varna region at risk of natural and anthropogenic hazards and to propose measures to increase their resilience and reduce the risk. It is characteristic of the dissertation that the topic has not been developed on a national scale.

Based on the set goal, the doctoral student defines his thesis, namely that in order to effectively deal with natural and anthropogenic hazards that impact the activities of hospital care facilities and public health in general, it is necessary to increase their resilience by implementing measures regarding infrastructure, critical systems, protection plans, staff training and intersectoral cooperation. The author knows the scientific problem in depth, can formulate a scientific hypothesis and conduct an analysis, the results of which would lead to the solution of the scientific goal of the dissertation.

The 5 research tasks set correspond to the goal and are scientifically justified. The tasks are clearly and precisely formulated, aimed at solving the main goal of the dissertation, and they are implemented in stages during the research.

The object, subject and units of the study are correctly defined. The exact place and time of conducting the research are indicated. In the process of the research, materials from the last 20 years from numerous national medical and statistical institutions are used.

The methodology of the scientific research is adequate to the goal and objectives. The approach has a clearly expressed applied focus and potential for application in medical practice. A large set of qualitative and quantitative methods from the field of social and health sciences was used. The description of the methods used is thorough and detailed, which fully justifies the validity of the results. The survey methods used, as well as the statistical analyses, are appropriate for the purposes of the study, allowing for obtaining reliable results. The visualization of the results is successfully carried out through a variety of line diagrams, planar, figure, volumetric graphic images, cartograms, cartodiagrams and photographs.

## **5. Results and Discussion**

The author demonstrates a capacity for critical analysis and presents both the positive data obtained and the limitations of the study. The results of his own research are presented in 5 chapters:

### *1) Natural and anthropogenic hazards in the Republic of Bulgaria*

This study provides a picture of natural disasters (types, events, victims) in Bulgaria over a period of 100 years. The analysis proves that the ten most severe disasters and incidents have been registered in the last 15 years. The regulatory acts and the available national strategies for dealing with crises and disaster protection are described and analyzed. The natural and anthropogenic hazards in Varna and the Varna region are reported and analyzed in great detail. The possibilities for providing medical care and the preparation of large medical institutions in the region are assessed. The interaction between various state and non-governmental institutions in the process of providing timely and comprehensive assistance in such situations has been analyzed. The study draws 10 main conclusions, the most significant of which are that Bulgaria is highly vulnerable to various natural and anthropogenic disasters, that better prevention and infrastructural adaptation are needed, as well as that educating the population and raising awareness are important for effectively dealing with disasters.

### *2) Types of Hospitals for Hospital Care in Varna and Varna Region*

Hospitals and health facilities play a critical role during disasters. This study analyzes the structure, capacity and readiness of larger hospitals in Varna Region in the context of the stated goal of the dissertation. The main characteristics of the hospitals are presented in tabular form (type of hospital, available clinics and departments, bed capacity, available medical and diagnostic equipment, etc.). The ten conclusions of this study determine the critical role of hospitals in disasters, the need for continuity of medical care and improvement of the health infrastructure. It is noted that hospitals should be assessed for structural, non-structural and operational vulnerabilities in order to ensure their safety and readiness in disaster situations.

### *3) Study of the readiness of medical institutions for hospital care in Varna and Varna region for protection and response to natural and anthropogenic disasters.*

The third own study focuses on the challenges related to the resilience of medical institutions and their readiness to respond to disaster situations. To achieve the task set, a questionnaire was constructed for conducting an in-depth interview. The questions in the interview consider a wide range of the activities and organization of medical institutions related to their readiness to respond to crises. A combination of qualitative analysis of the content of the submitted answers was carried out with the personal opinion and recommendations of the interviewees. The interviewed participants are established specialists with professional experience exceeding 20 years in the field of healthcare, who occupy key leadership positions in the system. 22 questions related to the topic of the study were discussed. The results lead to the formulation of 22 conclusions that outline important aspects in the context of the set goal, such as stability and safety of the infrastructure, communication and coordination in disasters, management systems and plans, organization of crisis teams, and others.

#### *4) Assessment of the capacity of hospitals in Varna and Varna region in reducing the risk of natural and anthropogenic hazards*

The information in the study is related to key issues and the assessment of experts regarding the protection and response of hospitals to disasters, and is provided in a synthesized form with an emphasis on the main criteria regarding resilience. The assessment of the disaster response capacity of the studied medical institutions with the corresponding answers of the respondents are presented in tables. The data are structured in such a way as to highlight the main aspects, recurring themes and individual differences in opinions. Through this approach, the author appropriately provides a clearer analysis, synthesis, summary and evaluation. The five general conclusions emphasize the importance of resource provision, good planning and training of personnel, as well as coordination and collaboration with external institutions.

#### *5) Measures for preparedness for protection and effective and timely response to disasters of medical institutions for hospital care in Varna region*

Ensuring the safety and continuous functionality of medical institutions during disaster situations is of critical importance for the protection of human life and the provision of quality medical services. In this context, the doctoral student emphasizes the need to implement a systematic approach to assessing the preparedness of health institutions for responding to various emergency events, including natural disasters, technological accidents and incidents related to chemical, biological, radiation and nuclear threats. He identifies 9 main components that should include the preparedness measures of medical institutions, and also refers to the activities that should be carried out under the relevant components. Dr. Georgiev determines that the implementation of effective risk management strategies will increase the resilience of the health system in Bulgaria. It develops and proposes a checklist (Appendix 6) that provides a structured tool for analyzing key aspects of hospital preparedness, including the resilience of infrastructure, provision of backup resources, emergency maintenance and repair mechanisms, evacuation plans, the organization of the command center and operational headquarters, as well as

procedures for interaction with external institutions and coordination with other rescue structures.

I highly appreciate this approach, considering it a significant contribution and a quality tool for identifying existing gaps and outlining priority actions to improve disaster preparedness and response.

In the five studies conducted, Dr. Georgiev discusses important aspects of the readiness of medical institutions to respond adequately to crises. The doctoral student analyzes his own results, discusses their significance and compares them with those of other author teams. The discussion is well written, with clear connections between the scientific conclusions and the possibilities (or lack of possibility) for practical application, which is a strong point of this scientific work. I accept the results obtained and evaluate them on their merits as very positive.

## **6. General conclusions and inferences**

The author of the dissertation makes well-structured general conclusions and inferences, which emphasizes that the dependence of the presented results is due to both the own studies and the excellent methodology of these studies and the competent statistical processing of the data. The results show the innovation of the obtained data. They logically follow the previously set goals and objectives. Here I will briefly summarize the more important ones, in my opinion, which are formulated in the conclusions made, namely that:

- Varna region is among the most vulnerable regions in the country in terms of natural and anthropogenic hazards;
- medical preparedness is crucial in disasters, as hospitals must have sufficient capacity, resources and coordination mechanisms for emergency response, and;
- education and awareness of the population are essential for risk reduction.

In conclusion, it can be said that with the development of the dissertation work, the author manages to fulfill his assigned tasks and achieve the scientific goal of this work. As a result of the work, he draws 11 general conclusions characterizing the scientific problem posed. The conclusions, based on the literature review, the analysis of his own results and the discussion, are precisely formulated and reflect the thesis and the results obtained.

## **7. Scientific contributions**

The scientific contributions formulated by the doctoral student reliably represent the quality of the dissertation. It is evident that Dr. Georgiev is one of the young, but with high potential researchers in the field of disaster and accident medicine. The contributions are correctly divided into two groups: contributions of a scientific-theoretical nature (6 pieces) and of a practical-applied nature (5 pieces). I accept all contributions and their significance, and I highly appreciate the contribution related to the development of a methodology for studying the readiness of medical institutions for hospital care for protection in disasters, as well as the created assessment



model and the prepared checklist for self-assessment of their readiness for protection in disaster situations.

## 8. Critical remarks and recommendations

I have no significant remarks or recommendations regarding the dissertation. From the documents presented to me during the procedure, I was convinced that the dissertation work, the results obtained and the contributions made are the result of independent, purposeful and in-depth scientific research activity of the doctoral student. Upon careful reading of all the materials during the procedure, I did not find any signs of plagiarism or incorrect citation of foreign sources.

## IV. Evaluation of the autoabstract

The autoabstract is presented in a sufficient volume for the ESD "doctor". It is developed on 51 pages and consists of parts that represent the structure and content, the main results and contributions of the dissertation. It logically follows the development of the dissertation work and shows the most characteristic moments of it and the main conclusions and proposals. It is written in a concise style and is designed at a good technical level. I accept it without significant remarks.

## V. Conclusion

The dissertation work of Assistant Professor Yasen Georgiev, MD is dedicated to a very topical scientific and practical problem – the readiness for protection and response of medical institutions in the Varna region at risk of natural and anthropogenic hazards. The author has significant theoretical training and accumulated practical experience to be able to identify, formulate, analyze and synthesize wide-ranging and multifactorial processes, such as the logistical and organizational readiness of the health system for response to crises with a large number of victims. I believe that he is already an established specialist, researcher and lecturer, who possesses undoubted professional qualities and high academic potential.

The dissertation contains scientific-theoretical and scientific-applied results, which represent a contribution to science and in particular to the field of disaster medicine. Based on the analysis of the entire documentation on the procedure and its compliance with the LDASRB, the Regulations for the Implementation of the LDASRB and the RDAS in MU-Varna, I have a **“positive”** opinion on the competition and the qualities of the candidate, Assistant Professor Yason Yonkov Georgiev, MD. In this regard:

I strongly propose to the esteemed Scientific Jury to award Dr. Yasen Georgiev the **Educational and Scientific Degree “Doctor”** in the Field of Higher Education 7. Health and Sports, Professional Field 7.1. Medicine, in the scientific specialty **“Disaster Medicine”**.

20/08/2025

Varna

Reviewer:.....

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

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/col. Prof. Dr. Nikola Shopov, MD/