

To
The chairman of the scientific jury,
determined by Order No. R - 7252 / 23. 12.2025
of the Vice-Rector for Research and Development of MU- Plovdiv

I present attached : Opinion
for a procedure for defense of PhD
in the scientific specialty of General Medicine

Doctoral student : Dr. Gergana Vaneva Apostolova, Department of Urology and General
Medicine, MU-Plovdiv

Prepared the opinion : Assoc. Prof. Petar Antonov, MD, PhD
Scientific specialty: 7.1 Medicine; UROLOGY
Institution: Medical University of Plovdiv

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En **Чл.5 §1, б. "В" Регламент (ЕС)2016/679**

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OPINION

by

Assoc. Prof. Petar Antonov, MD, PhD

Head of the Department of Urology and General Medicine
Medical University of Plovdiv

Subject : procedure for acquiring the PhD in the field of higher education 7. Health and Sports in the professional field 7.1 Medicine and scientific specialty "General Medicine" by Dr. Gergana Vaneva Apostolova with the topic: " **VACCINATION BEHAVIOR OF BULGARIAN GENERAL PRACTITIONERS WITH A FOCUS ON THE VACCINE AGAINST HUMAN PAPILLOMA VIRUS** " .

The opinion was prepared in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, the Regulations for Academic Development at MU-Plovdiv, and Order No. 7252/23.12.2025 of the Vice-Rector for Research and Development of MU-Plovdiv. Following a decision with protocol No. 1/30.12.2025 of the National Council, I have been appointed to prepare an "Opinion".

1. Biographical data and scientific profile of the doctoral student.

Dr. G. Apostolova graduated at the Language High School in Pazardzhik. In 2019, she graduated as a Master of Medicine at the Medical University of Plovdiv. Immediately after that, she started working as a doctor in the Department of Endocrinology in Plovdiv for 1 year. Since 2020, she has been a resident in General Medicine. She has been working as an Assistant in the Department of Urology and General Medicine since 2024.

Dr. Apostolova is fluent in English and German. This allows her to participate in international congresses, projects, and improve her qualifications through various courses.

The scientific development of Dr. G. Apostolova began after winning a competition for a full-time doctoral student in General Medicine in 2022. She was enrolled by Order R-3256/14.12.2022. After a Department Council held on 02.12.2025 to discuss the dissertation work and a subsequent decision of the Faculty Council of the Faculty of Medicine on 03.12.2025, she was enrolled with the right to defend. The scientific supervisors of the proposed dissertation work are Prof. Dr. Radost Asenova, MD and Assoc. Prof. Dr. Dimitar Nikolov, MD

2. Relevance of the topic of the doctoral study .

The presented dissertation is on a important topic, considering that Bulgaria ranks last in the EU in terms of HPV vaccination coverage. HPV vaccination is a unique opportunity for the prevention of a number of diseases associated with this virus, such as cervical cancer, penile cancer, anal cancer and oropharyngeal carcinomas.

3. Structure of the dissertation.

The dissertation is extremely well structured and contains all the required parts for this type of scientific work:

- Introduction – 1 page;
- Literature review – 30 pages;
- The objective is clearly formulated and coincides with the topic of the dissertation;
- There are 5 tasks, they are directly related to the topic, and the methods are highly scientific;
- Materials and Methods – are presented on 9 pages, describing in detail the design of the study, the methods of information collection, the methodology and limitations . The statistical methods used are standard for this type of scientific work and ensure the reliability of the data obtained and presented.
- Results and Discussion – 97 pages in which the results obtained for the individual tasks are presented in parallel and an analytical and in-depth analysis is carried out in relation to the scientific literature.
- Discussion – a 5-page analysis of the results obtained, which are compared with the results of other authors, is carried out. In this part, Dr. Apostolova very clearly presents the current scientific knowledge on the topic and presents her views.
- The conclusions are in agreement with the set goals and objectives and provide a logical answer to the scientific questions posed.
- Based on the conclusions, summarized and analytical recommendations were made to various government structures, professional organizations, and medical universities.
- The contributions are divided into those of an original nature - 7, of a confirmatory nature - 6 and of an applied nature - 2, which are correct and of real scientific and practical value.
- Publications related to the topic – the results of the dissertation work are presented as 3 full-text publications (2 of which in Scopus) and 6 participations in scientific forums.

The dissertation contains 208 pages, is illustrated with 20 figures and 48 tables. The literature reference consists of 267 sources. The sources used by Bulgarian authors or institutions are 13.

4. Evaluation of results.

The results obtained are based on the extensive coverage of GPs. The pilot study covered 210 GPs, and the anonymous and individual electronic survey for "Pro-VC- Be Bulgarian " is among 364 randomly selected GPs working in the Republic of Bulgaria. A discussion was conducted in 6 focus group discussions on the topic. The results of the test-retest and confirmatory factor analysis prove that the Bulgarian version of Pro-VC- Be is an instrument with a high degree of reliability and satisfactory construct validity, suitable for assessing the behavioral and cognitive determinants of vaccination behavior among general practitioners. An in-depth analysis of the GP profile and attitudes towards the application of various vaccines, including mandatory, recommended and emergency vaccines, was conducted. The subsequent critical analysis and interpretation of the results deduces the perceived restrictions on vaccination. Of the consecutive conclusions with the greatest importance is number 11: for systemic reform, standardization of recommendations between different medical specialists, provision of stronger institutional support, targeted communication training and development of sustainable information campaigns addressing the cultural and social barriers identified by General practitioner.

5. Assessment of publications related to the dissertation work.

The scientific value measured by publications and participation in scientific forums is high. The latter are sufficient and are fully related to the topic. Two of the publications are in a refereed journal. They also support my personal opinion that Dr. Apostolova has the qualities for scientific research of high value.

6. Critical notes, recommendations.

The dissertation is written in a highly scientific style, while at the same time being easy to read and understand. It is well and sufficiently illustrated with tables. The results are summarized in an appropriate manner with tables and figures. Due to the above-stated opinion, I do not present critical remarks. I recommend continuing work on the topic, through participation in scientific forums and familiarization with the results of the relevant institutions and GPs.

7. Abstract.

The abstract is presented on 126 pages and contains the methodology, results, conclusions and contributions of the dissertation work.

8. Conclusion.

The dissertation work of Dr. Gergana Apostolova is a thorough and complex scientific work with a clearly practical character. The topic is important, disputable and seeks answers to questions with a real practical focus, concerning the possibility of reducing oncological diseases through the use of a vaccine against HPV in Bulgaria . The applied methods are adequate to

achieve the set goals and objectives, the results are convincing, the conclusions are clearly formulated, the contributions are significant and have real practical value.

The dissertation on the topic "**VACCINATION BEHAVIOR OF BULGARIAN GENERAL PRACTITIONERS WITH A FOCUS ON THE VACCINE AGAINST HUMAN PAPILLOMA VIRUS**" meets the requirements for this type of scientific work, as well as the requirements of the regulatory framework.

Based on the above, I give my positive assessment for Dr. Gergana Vaneva Apostolova to be awarded the educational and scientific degree "Doctor" in the scientific specialty "General Medicine".

12/01/2026

Plovdiv

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Assoc. Prof. Dr. Petar Antonov, MD

