To
The Chair of the Scientific Jury
Prof. Dr. Iva Hristova, MD, DSc
National Center of Infectious and Parasitic Diseases
Sofia

REVIEW

by Prof. Dr. Ani Kevork Kevorkyan, MD, PhD
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In connection with the procedure for awarding the academic position of **Associate Professor** in the scientific specialty "Epidemiology" (03.01.29),
Field of Higher Education: 7. Healthcare and Sports,
Professional Area 7.1. Medicine,
announced for the needs of the Department of "Epidemiology" at the National Center of Infectious and Parasitic Diseases (State Gazette, Issue 15/06.02.2026), and pursuant to Order No. 106/07.04.2026 of the Director of the NCIPD – Sofia.

Sole applicant in the announced competition:

Dr. Lili Emilova Rahamimova-Marinova, MD, PhD
Head of the Department "Epidemiology and Surveillance of Infectious Diseases" at the NCIPD, Sofia

I. Analysis of the Candidate's Career Profile

Dr. Lili Marinova graduated from the Medical University of Sofia, where in 1995 she obtained a Master's degree in Medicine with excellent results in the state examinations. Immediately after graduation, she began working as a resident physician at the National Multiprofile Transport Hospital "Tsar Boris III", Sofia. The following twenty-five years of her professional career, continuously and up to the present, have been dedicated to the epidemiology of infectious diseases, both as a science and as a practical field. During the period 2001–2016, she worked at the Department of "Epidemiology and Surveillance of Infectious Diseases" at the National Center of Infectious and Parasitic Diseases (NCIPD), where she successively progressed through all stages of academic development: Research Associate, Third Degree (2003) and Second Degree (2006), and since 2010 she has held the position of Chief Assistant Professor. She was appointed to the academic position of Associate Professor in the scientific specialty "Epidemiology" in 2015, and in the following year she became Head of the Department of "Epidemiology and Surveillance of Infectious Diseases" at the NCIPD.

Changes in the candidate's career development occurred with her transition to the system of the Sofia Regional Health Inspectorate (SRHI), with an emphasis on applied epidemiology and the accumulation of administrative experience as Chief Expert, Chief Inspector, Sector Head, Head of the Department of "Epidemiology and Control of Infectious Diseases," and Deputy Director.

Since the end of 2025 and currently, she has held the position of Head of the Department of "Epidemiology and Surveillance of Infectious Diseases" at the NCIPD, Sofia.

In the course of her postgraduate qualification, Dr. L. Marinova obtained a specialty in "Epidemiology of Infectious Diseases" from the Medical University of Sofia (2005), and in 2024 she acquired a Master's degree in "Public Health and Health Management" from the Medical University of Sofia. Her affinity for scientific research formed the basis for the successful defense in 2012 of her PhD degree in the scientific specialty "Epidemiology," with the dissertation entitled "Epidemiology of Measles in Bulgaria under Elimination Conditions and Opportunities for Effective Surveillance."

An important prerequisite for the candidate's overall qualification and professional growth is her excellent command of English and Russian. She possesses very good computer skills related to the administration and management of national and regional specialized information systems for epidemiological surveillance of infectious diseases, as well as the provision and analysis of data in specialized web portals for infectious disease surveillance: TESSy of the ECDC for measles, mumps, rubella, and Legionnaires' disease (until 2016); the National COVID-19 Response System and the Vaccinated Persons Register (2022–2025).

Particularly impressive are the numerous courses and specializations attended by Dr. Marinova throughout her professional development, through which she has enhanced and expanded her qualifications in the fields of infectious disease surveillance, vaccines and immunoprophylaxis, epidemiological statistics, risk analysis and cybersecurity, and early warning in crises related to biological weapons and bioterrorism. A total of 36 courses are listed, including 12 abroad: Slovenia (2003), Romania (2005), Albania (2005), the Netherlands (2006), Portugal (2007), Spain (2007), Luxembourg (2008), Finland (2009), Sweden (2010, 2011), the United Kingdom (2012), and France (2024).

She is a member of three professional and scientific organizations: the Bulgarian Medical Association, the Bulgarian Scientific Society of Epidemiology of Infectious and Non-Infectious Diseases, and the Southeast European Medical Forum.

II. General Description of the Submitted Competition Materials

The documents and materials submitted for the competition comply with the requirements of the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria, as well as the specific requirements of the NCIPD–Sofia, and provide the evidentiary material necessary for conducting the present procedure. I have no joint publications with the candidate.

III. Evaluation of the Candidate's Scientific Works in Relation to Her Overall Academic Development

Dr. Lili Marinova is the author/co-author of a total of 48 scientific works, presented as follows: a dissertation for the award of the educational and scientific degree "Doctor" (PhD); an abstract of the dissertation; 16 full-text publications in scientific journals referenced and indexed in internationally recognized scientific databases (Scopus/Web of Science), of which 7 have an impact factor; 28 full-text publications in peer-reviewed scientific journals/proceedings not indexed in internationally recognized scientific databases; 1 monograph; and 1 practical guide for healthcare workers and health mediators.

Four of the articles were reviewed during the procedure for obtaining the educational and scientific degree "Doctor" (three of them published in journals indexed in Scopus/Web of Science, including two with impact factor, and one in a non-indexed journal).

Thus, in the current competition for the academic position of Associate Professor, the candidate participates with a total of 43 scientific works that do not duplicate the evidentiary material from the previous academic promotion procedure. These are distributed as follows:

- one dissertation;
- one monograph;
- 13 publications in scientific journals referenced and indexed in internationally recognized scientific databases (Scopus/Web of Science), of which 5 are published in journals with impact factor:
    - *Eurosurveillance* (IF 2016 – 7.202),
    - *Comptes rendus de l'Académie bulgare des Sciences* (IF 2014 – 0.284),
    - *European Journal of Public Health* (IF 2013 – 2.459),
    - *Vaccine* (IF 2012 – 3.492),
    - *Eurosurveillance* (IF 2011 – 6.153);
- 27 publications in peer-reviewed scientific journals not indexed in internationally recognized scientific databases;
- and 1 practical guide for healthcare workers and health mediators.

The total impact factor of the five publications is 19.587.

In addition, Dr. Marinova has submitted a list of 36 participations with presentations at scientific forums (4 of them abroad), respectively published in the form of abstracts in conference/congress proceedings.

The submitted monographic work, *"Effects of the COVID-19 Pandemic on the Implementation of the National Immunization Program in the Sofia-City Region,"* consists of 115 pages organized into four separate chapters and includes information and analysis regarding the spread of COVID-19 worldwide and in Bulgaria, with an emphasis on the impact of the pandemic on public health and especially on the implementation of immunization programs.The methodologies for studying the pandemic and vaccination coverage with mandatory immunizations and revaccinations during the period 2020–2022 in the Sofia-City Region are described in detail, and these methodologies could be applied not only during periods of emergency situations. Through the prism of the regional characteristics of COVID-19 in the Sofia-City Region, Dr. Marinova confirms the negative impact that the pandemic inflicted on the country by tracing the dynamics of the immunization process even prior to the pandemic. The main results of her studies demonstrate a significant decline in vaccination coverage below 95% for primary immunizations (with the exception of immunization against tuberculosis and hepatitis B administered in maternity hospitals) as well as for revaccinations. This creates conditions for outbreaks and epidemics of vaccine-preventable diseases in the region, including infections that had long been controlled and eliminated at the national level. As a result of the leading place occupied by COVID-19 in the structure of infectious morbidity and mortality in the Sofia-City Region, the entire healthcare system resource was engaged in activities related to the prevention, control, and treatment of coronavirus infection. This had a direct impact on immunization activities, which became compromised, while vaccination coverage declined. Restrictive measures and parents' fears of severe adverse reactions following vaccination in the context of COVID-19 and the complicated epidemic situation were additional contributing factors to the low vaccination coverage reported during the pandemic period.The monograph stands out for its scientific value, as the in-depth analysis has enabled the formulation and proposal of specific solutions for improving immunization policies.

Of great practical value is Dr. Marinova's participation in the adaptation of the practical guide for healthcare workers and health mediators, *"Let's Talk About Disease Prevention: How to Increase Childhood Immunization Rates,"* published in 2012. Vaccine hesitancy and doubts regarding immunizations have been assessed by experts as one of the major threats to public health in the 21st century, which necessitates the search for approaches to overcome them.Knowledge of the immunological and epidemiological effectiveness of vaccines, their storage, and proper methods of administration is only a prerequisite for achieving high vaccination coverage and, consequently, herd immunity. In the cited guide, in an engaging and accessible manner and jointly with experts from the ECDC and the World Health Communication Associates (WHCA), approaches and communication strategies for increasing trust in vaccines are described, including concrete examples of conversations with parents (grandparents/guardians). The perspectives of experts in social marketing, health promotion, and media, as well as those of the so-called "hard-to-reach" population groups, vaccine experts, and healthcare workers, are also presented.

The guide also includes numerous practical recommendations intended to assist healthcare workers in responding to frequently asked questions related to parents' fears regarding immunizations, thereby supporting them in making informed decisions about vaccination.

The distribution of the remaining scientific output submitted for the current competition (40 articles, of which 8 are in English and 32 in Bulgarian) according to the candidate's position within the authorship teams confirms her active participation in the research process (conceptualization, implementation, and preparation of the studies): she is first author of 12 articles (30%), second author of 11 articles (27.5%), third author of 3 articles (7.5%), and fourth or subsequent author in the remaining publications. These works address significant problems in the epidemiology of infectious diseases within the following thematic areas: epidemiology of airborne infectious diseases (measles, rubella, influenza, legionellosis and Legionnaires' disease, pertussis, respiratory syncytial infection, SARS); epidemiology and surveillance of other acute infectious diseases included in the annual analyses of infectious diseases in the country; vaccines, immunoprophylaxis, and immunization policies; epidemiology of emerging and re-emerging acute infectious and parasitic diseases such as COVID-19 and malaria; international travel and immunoprophylaxis; and international health regulations and border health control. The candidate's strong collaborative approach underlies her joint research activities with other specialists in an effort to ensure that the topics under consideration are examined comprehensively and in depth.

A major part of Dr. Marinova's scientific work is devoted to measles, and her interest in this virus and its related manifestations has continued even after the defense of her PhD degree in 2012. This is evidenced by a total of 10 publications on the subject. The candidate has actively participated in studies on the epidemiology of measles in Bulgaria during the elimination period, including throughout the major epidemic of 2009–2010.During the course of this epidemic, cases of nosocomial transmission of measles were also described, including more than 300 cases among healthcare personnel. Particularly valuable are the molecular-biological studies of measles-positive patients during the elimination period in Bulgaria, as well as research on a complex of socio-economic factors contributing to the occurrence of complications among infected individuals.

Some of the scientific studies are focused on measles surveillance and the assessment of the effectiveness of the Information System for Collection and Analysis of Measles Morbidity Data (2011). Additional studies are related to the analysis of factors shaping the epidemic process, leading to the persistence of wild measles virus circulation among the Bulgarian population and its local transmission despite the availability of a highly effective vaccine.

In co-authorship, Dr. Marinova has participated in the preparation, interpretation, and writing of the annual analyses of acute infectious diseases in Bulgaria (main epidemiological indicators) over a period of 12 years. This in itself represents a significant contribution to epidemiological science in Bulgaria. The opportunity to monitor trends in the spread of all major notifiable and registrable infectious diseases, as well as the reasons for these trends, serves as a basis for formulating recommendations for improving surveillance, introducing changes in regulatory frameworks, adapting immunization recommendations, monitoring natural focality, and other activities. This supports the healthcare network and provides guidance for decision-making by the Ministry of Health regarding the control of epidemic spread of these diseases among the population.

Of practical importance are the results of studies conducted with the participation of Dr. Marinova concerning the attitudes of various target population groups toward vaccines and immunizations, aimed at identifying the causes behind the existence of so-called "pockets" of non-immune populations. The selected target groups included general practitioners, pediatricians, epidemiologists, nurses, feldshers, health mediators, and health inspectors from settlements in three pilot regions in the country selected according to predefined criteria: the town of Samokov (Sofia Region), the town of Blagoevgrad (Blagoevgrad Region), and the village of Kovachevo, Septemvri Municipality (Pazardzhik Region). These studies led to the organization of a series of training sessions for the target groups on how to work with the educational materials in their communication with parents and the public on issues related to infectious diseases and their prevention through immunization.

In part of the candidate's scientific works, an assessment was carried out regarding the effectiveness of the Information System for Collection and Analysis of Measles Morbidity Data. The analytical component led to changes of practical importance: based on the results of the evaluation, the system was further developed and improved. An extension of the system was designed and implemented, creating new possibilities both in the data entry component and in its analytical functions. New variables related to the registration of additional epidemiological investigation data were incorporated, including: if a case is part of an outbreak - the location of the outbreak (settlement, school or other childcare facility, hospital, or another healthcare institution); registration of additional epidemiological data concerning rubella, such as pregnancy status, gestational week number, and rubella virus genotype; improved possibilities for generating tabular and graphical reports by regions and age groups; and the introduction of registration, notification, and reporting of investigated and discarded cases of measles and rubella. The most significant contribution is considered to be the system's capability for registration, notification, and reporting of investigated and discarded cases of measles and rubella, through which it comes as close as possible to the European requirements regarding the specificity, sensitivity, and timeliness of surveillance for these two diseases. The further improvement of the system's functionality toward meeting all criteria for measles and rubella elimination established by the WHO provided justification to the Ministry of Health for the continuation of the "National Program for the Elimination of Measles and Rubella."

All of the above provides grounds for accepting the contributions identified in Dr. Marinova's self-assessment, as contained in the presented scientific and applied scientific works.Although, according to the adopted minimum national requirements for the academic position of Associate Professor, participation in scientific forums in Bulgaria and abroad is not subject to evaluation and does not contribute points to the candidate's assessment, I would nevertheless like to briefly address this activity as well. It is related to the dissemination of the candidate's results and achievements among the scientific community.The total number of Dr. Marinova's participations in specialized scientific forums throughout her professional career to date is 36, of which 20 occurred after obtaining the educational and scientific degree "Doctor" (PhD) in 2012.

IV. Impact of the Candidate's Publications in National and International Literature (Publication Profile) According to the information provided by the candidate and available at the time of the review, Dr. Marinova's publications have been cited a total of 210 times, of which 149 citations are in Scopus/Web of Science (excluding self-citations). The citations are predominantly by foreign authors, mainly in refereed and indexed journals with impact factor, which in itself is indicative of the quality of the published scientific works involving the candidate. The cumulative impact factor of the citing publications is 434. The majority of the citations occurred after the defense of her PhD degree in 2012, reflecting an intensive period of research, analysis, and dissemination of scientific results. Three articles stand out with the highest citation rates, all related to the in-depth and nationally representative analyses of the measles epidemic of 2009–2011. All three were published in the prestigious scientific journal *Eurosurveillance*, which focuses on topics related to surveillance, epidemiology, prevention, and control of infectious diseases in Europe. The publication *"The measles outbreak in Bulgaria, 2009–2011: An epidemiological assessment and lessons learnt"* has been cited 57 times; *"An update on an ongoing measles outbreak in Bulgaria, April–November 2009"* has received 36 citations; and *"Nosocomial transmission of measles among healthcare workers, Bulgaria, 2010"* has been cited 35 times. These publications are related to one of the main directions of Dr. Marinova's research activity - the study of measles infection in Bulgaria and its manifestations in the form of outbreaks and epidemics in the context of the World Health Organization's goals for achieving measles elimination, particularly within the European Region, to which the candidate has made a substantial co-authored contribution.

V. Comprehensive Qualitative Evaluation of Educational-Methodological and Teaching Activity

The candidate has provided documentation regarding her teaching workload at the "Yordanka Filaretova" Medical College at the Medical University of Sofia, related to the teaching of students in the specialty "Public Health Inspector." The comprehensive qualitative evaluation of her educational-methodological and teaching activity includes records of classroom workload by years from lectures, practical exercises, as well as participation in semester and state examinations.

The candidate's teaching workload during the two consecutive academic years (2022/2023 and 2023/2024) was balanced, amounting annually to 90 hours of lectures and 75 hours of practical training. Participation in semester examinations for the two cited years totaled 21.12 hours, while participation in state examinations amounted to 31 hours.

It should also be noted that Dr. Marinova's teaching experience is broader in scope. During the period 2001–2026, as a collaborator at the NCIPD (Department of Epidemiology), she participated as a course leader, coordinator, or guest lecturer in postgraduate and individual training courses organized by the NCIPD and other institutions on topics related to immunoprophylaxis, disinfection, disinsection and deratization, infectious disease surveillance, and others.

VI. Additional Scientific Activity / Implementation Activity

The candidate demonstrates a broad spectrum of scientific interests as an active participant/leader in a total of 20 research projects, of which 15 are international. The thematic scope of the project activities is diverse and related to strengthening surveillance, policy, and legislation in the field of prevention and control of infectious diseases; the network for surveillance and control of Legionnaires' disease in Europe; monitoring and evaluation of European immunization systems; the network for surveillance and control of vaccine-preventable diseases in the European Union; action plans concerning science and society during

epidemics and pandemics; strengthening resilience to disaster risks in Bulgaria; and the development of a National Disaster Risk Profile for Bulgaria, among others.

Some of the publications presented in the current competition have been produced on the basis of these projects. Participation in the listed projects complements and further develops the practical skills accumulated by Dr. Marinova over the years as an epidemiologist and, at the same time, enriches her research and teaching experience.

The candidate's implementation activity is also impressive and is mainly related to improving infectious disease surveillance in Bulgaria. In co-authorship, during the period 2003–2011, she participated in the implementation of the following:

- ELISA method for detection of antibodies against *Legionella pneumophila* (I. Tomova, L. Marinova, 2003);
- Development and introduction of a unified form for documenting activities performed during epidemiological investigations of Legionnaires' disease outbreaks, including environmental sampling (L. Marinova, I. Tomova, R. Filipova, 2005);
- Development of an automated system for operational surveillance and control of infectious diseases in the Republic of Bulgaria (A. Kurchatova, M. Kozhuharova, L. Marinova, A. Minkova, M. Stoeva, L. Milusheva, 2006);
- Standardized form for dissemination of web-based information on weekly morbidity from acute infectious diseases for the purposes of operational epidemiological surveillance of infectious diseases in Bulgaria (M. Kozhuharova, L. Marinova, A. Georgiev, 2007);
- Development of an internet-based distance learning system for professionals working in the field of public health (M. Kozhuharova, A. Georgiev, L. Marinova, K. Parmakova, 2008);
- Development of an internet-based information system for collection and analysis of morbidity data on measles, mumps, and rubella in Bulgaria (L. Marinova, M. Kozhuharova, Y. Markov, 2011).

VII. Fulfillment of the Minimum National Requirements

In compliance with the requirements of the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria and those of the NCIPD–Sofia, all data presented during the review procedure were converted into a points equivalent in order to assess fulfillment of the minimum national requirements for the academic position of Associate Professor. **With a minimum required score of 400 points, Dr. Marinova has presented evidence corresponding to a total of 3,603.3 points, distributed as follows:**

- **Criterion A**
  (Indicator 1. Dissertation for acquisition of the educational and scientific degree "Doctor" on the topic *"Epidemiology of Measles in Bulgaria under Elimination Conditions and Opportunities for Effective Surveillance"*) – **50 points**;
- **Criterion B**
  (Indicator 3. Habilitation thesis – monograph *"Effects of the COVID-19 Pandemic on the Implementation of the National Immunization Program in the Sofia-City Region"*, 2026, ISBN 978-619-7714-22-7) – **100 points**;

- **Criterion G** – total of **398.3 points** with a minimum required of 200 points, distributed as follows:
    - Indicator 7. Publications in scientific journals referenced and indexed in internationally recognized scientific databases (Scopus and Web of Science) – 13 publications – **160.6 points**;
    - Indicator 27. Publications and reports published in non-indexed peer-reviewed journals or edited collective volumes – 27 publications – **237.7 points**;
- **Criterion D** – total of **2,540 points** with a minimum required of 50 points, distributed as follows:
    - Indicator 10. Citations in scientific journals indexed in internationally recognized scientific databases or in monographs and collective volumes (Scopus and Web of Science) – 149 citations – **2,235 points**;
    - Indicator 12. Citations or reviews in non-indexed peer-reviewed journals – 61 citations – **305 points**;
- **Criterion E** – total of **515 points**, distributed as follows:
    - Indicator 15. Acquired medical specialty – 1 specialty – **40 points**;
    - Indicator 16. Participation in a national scientific or educational project – 5 projects – **75 points**;
    - Indicator 17. Participation in an international scientific or educational project – 10 international projects – **200 points**;
    - Indicator 19. Leadership of an international scientific or educational project – 5 international projects – **200 points**.

Overall, the presented data exceed many times over the national minimum requirements for the academic position of Associate Professor.

VIII. Conclusion

Dr. Lili Marinova is a well-established epidemiologist with profound knowledge of the theory of Epidemiology as a medical science. She can also boast extensive practical experience both in infectious disease surveillance and in conducting field epidemiological investigations of significant infectious diseases, as well as in the comprehensive organization and implementation of anti-epidemic measures. She demonstrates a pronounced affinity for scientific research, and the presented publications and citations, project activities, and international specializations characterize her as a promising scientist.

The evidentiary material submitted within the current procedure fully satisfies and significantly exceeds the specific scientometric criteria for acquiring the academic position of "Associate Professor" in accordance with the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the regulations of the NCIPD–Sofia.

On this basis, I confidently recommend to the members of the Scientific Jury, appointed by Order No. 106/07.04.2026 of the Director of the NCIPD-Sofia, that Dr. Lili Emilova Rahamimova-Marinova be elected to the academic position of "Associate Professor" in the scientific specialty "Epidemiology" for the needs of the Department of "Epidemiology" at the NCIPD, Sofia.

Reviewer::
Prof. Dr. Ani Kevorkyan, MD, PhD