

REVIEW

Subject. Announced competition for the academic position of *associate professor* in the area of higher education 7. Health and Sport, professional field 7.1 Medicine and scientific specialty Paediatrics for the needs of the *Clinic of Paediatric Surgery* at the University Hospital "N.I. Pirogov" EAD according to the decision of the Scientific Council with protocol ND-01-2-05/15.01.2025, published in the *State Gazette*, No. 90/25.10.2024r.

Candidate (single): **Denitsa Rumenova Kofinova**, PhD

Opinion by: Prof. Dr. Ruzha Zlatanova Pancheva-Dimitrova, PhD, member of the Scientific Jury under order RD-26-269/29.01.2025 of the Executive Director of UMHALSM "N.I. Pirogov" EAD.

1. Brief biographical and professional details of the

Dr. **Denitsa Rumenova Kofinova** was born on **November 19, 1989**. She graduated her secondary education in **2008** at **125 "Prof. Boyan "** in Sofia, with a major foreign language German. She continued her studies at the **Medical University - Sofia**, where in **2014** she graduated with a degree in medicine.

After graduation she started working at the **Hospital "Prof. Dr. Ivan Mitev" - Sofia**, where she gained considerable clinical experience in the field of pediatric gastroenterology. Initially she worked as a **resident physician** (2015-2016), and from **2016 to 2020** she underwent specialization in **pediatric gastroenterology**, which she completed in **August 2020** with the acquisition of a specialty. Subsequently, she also completed a **specialty in pediatrics** (2023).

From **2023 until now** she has been working as a **pediatrician and pediatric gastroenterologist in the Department of Pediatric Abdominal Surgery at N. II. Pirogov"**, where she is actively involved in the diagnosis and treatment of children with gastroenterological diseases.

In parallel with her clinical work, Dr. Kofinova developed her academic career at the **Medical University of Sofia**, where she was initially a **Visiting Assistant Professor** (2016-2018), then **Assistant Professor** (2018) and **Chief Assistant Professor** (2021) at the **Department of Pediatrics**. She is committed to teaching medical and dental students both in Bulgarian and English.

Dr. Kofinova defended her **PhD thesis in 2021**, dedicated to the **evaluation of fibrosis in chronic liver diseases in childhood**. She is fluent in **English (C1), German (C1) and Russian (A2)**.

She is an active participant in **national and international scientific conferences**, having presented clinical cases, scientific papers and posters at forums organized by **ESPGHAN, the Bulgarian Society of Gastroenterology and pediatric associations**.

In addition to her scientific and clinical activities, Dr. Kofinova holds **additional qualifications in abdominal ultrasonography**, has undergone specialized courses in **hepatic elastography** and is certified in **health management**.

2. Evaluation of the candidate's scientific activity

The scientific work of Dr. Denitsa Kofinova is focused on pediatric gastroenterology, with special attention to chronic liver diseases, inflammatory bowel diseases and their impact on nutrition and general health of children. She successfully combines clinical practice with research, making her contributions not only academically significant but also directly applicable to everyday medical practice.

Dr. Kofinova has a solid publication activity, having co-authored **over 50 scientific publications**, some of which are indexed in **Scopus and Web of Science**. Her articles address important topics such as **ulcerative colitis, Crohn's disease, genetic aspects of non-alcoholic fatty liver disease in children and innovative methods for the assessment of liver fibrosis**. She has been involved in the development of novel approaches to diagnosis and therapy, including **non-invasive techniques for the assessment of fibrosis in chronic liver disease in childhood**, which is the topic of her PhD thesis, defended in 2021.

In addition to her individual research work, she is part of **national and international projects** related to studies of genetic markers in liver disease, monitoring the effectiveness of antiviral therapy in children with hepatitis C, and analyzing risk factors for complications of inflammatory bowel disease.

Dr. Kofinova regularly presents her scientific results at **international conferences**, including events organized by **ESPGHAN**, where she has presented **oral papers and poster presentations**. She has also contributed to scientific monographs and collective publications on pediatric gastroenterology.

Her scientific production shows **a deep interest in clinical science and a drive for innovative solutions in the diagnosis and treatment of gastroenterological diseases in children**. The presence of **publications with a high impact factor**, active participation in **research projects** and recognition by the international scientific community confirm the **high value of her scientific contributions**.

3. Main contributions in scientific works

Dr. Denitsa Kofinova's scientific research focuses on some of the most complex and

important issues in pediatric gastroenterology and hepatology. Her work is aimed at better understanding **chronic liver disease, inflammatory bowel disease and *Helicobacter pylori* infection in children**. She skillfully combines her clinical experience with research that not only contributes to medical science, but also has **direct application in diagnosis and treatment**.

Better understanding of liver disease in children

Childhood liver disease often requires sophisticated diagnostic methods, and **liver biopsy** has long been the only reliable way to determine the extent of fibrosis. Dr. Kofinova is focusing her efforts on **developing non-invasive methods** to replace this unpleasant and risky approach for children.

For the first time in Bulgaria she applied **Shear-wave elastography (2D-SWE)** for the assessment of liver fibrosis in children. This method allows **painless and rapid diagnosis**, and she was able to establish **specific cut-off values** that differentiate between different degrees of fibrosis. This means that doctors can now more accurately assess **if and when a child needs further investigations or treatment** without resorting to a biopsy.

In addition, Dr. Kofinova is researching **genetic** factors that may contribute to the development of liver disease in children. For the first time in Bulgaria, she analyzed **the genetic polymorphisms PNPLA3, TM6SF2 and GCKR**, which play a role in the development of **non-alcoholic fatty liver disease (NAFLD)**. These findings provide a new perspective for understanding the disease and open doors to future personalized therapies.

Inflammatory bowel disease - an underestimated problem in childhood

Inflammatory bowel diseases, such as **Crohn's disease and ulcerative colitis**, are often thought of as an adult problem, but are actually affecting more and more children. Dr Kofinova devotes a significant part of her scientific work to these diseases, analysing **their clinical course in Bulgarian children**.

She found that Bulgarian children with **Crohn's disease and ulcerative colitis** suffer from **more aggressive forms of the disease** compared to adult patients. She observed that these children **much more often have extraintestinal complications, including anemia**, which is present in more than **67% of patients**.

In addition, Dr. Kofinova is working to identify the **most reliable markers for disease tracking**, proving that **calprotectin is the best indicator of disease activity**. This is of utmost importance to physicians as it allows **more accurate monitoring of the child's condition and optimization of treatment**.

She is also doing the **first study in Bulgaria** to track the effectiveness of **biologic**

therapies (TNF- α inhibitors) in children with inflammatory bowel disease. Forty-eight children were included in the study, and the results provide valuable information about the effectiveness of the treatment and possible side effects.

***Helicobacter pylori* infection - the hidden enemy**

Infection with *Helicobacter pylori* is widespread, but in childhood it often remains **underrecognized and underdiagnosed**. Dr. Kofinova conducted a **detailed study of the prevalence of infection among Bulgarian children**, finding that **children with a family history of gastroenterological diseases are at significantly higher risk**.

It also explores the relationship between *H. pylori* and **functional abdominal pain**, with results showing that **infection is not always directly related to symptoms**, helping doctors be more precise in diagnosis and treatment.

Innovations in the treatment of liver disease and gastroesophageal reflux disease

Dr. Kofinova has also made significant contributions to the **treatment of chronic hepatitis C in children**, being among the first in Bulgaria to report successful cases of treatment with **direct-acting antiviral agents (DDAs)**. These new therapies offer a **safer and more effective approach for children**, removing the need for prolonged and heavy interferon treatment.

In addition, she introduced **the innovative endoscopic STRETTA procedure to treat gastroesophageal reflux disease (GERD) in children**, for which she received **the Physician of the Year Award in 2024**.

Application of scientific findings in clinical practice

Many of Dr. Kofinova's scientific contributions are not just **theoretical research** but have **direct application in medical practice**. Thanks to her research, **more sparing diagnostic methods**, better disease follow-up strategies and **innovative therapeutic approaches are now applied** in Bulgarian paediatric gastroenterology.

4. Teaching

Dr. Denitsa Kofinova's teaching is inextricably linked to her clinical practice, and she imparts her knowledge in a way that helps students build not only theoretical but also practical skills. For more than seven years she has been a part of the academic staff of the Medical University of Sofia, where she first started as a visiting assistant and later became assistant professor and senior lecturer at the Department of Paediatrics.

In her work with students, she always strives for a dynamic and interactive teaching style focused on understanding **pediatrics, pediatric gastroenterology, and the importance of nutrition in children**. The courses in which she participates are not just lectures, but a real

dialogue with the students, where through real clinical cases and practical sessions she prepares them to work with young patients.

Subjects taught and approach to training

Dr. Kofinova is involved in the training of **medical and dental** students, as well as **pediatric and pediatric gastroenterology** residents. The main courses in which she actively teaches include:

- **General Paediatrics** - here students learn the basics of paediatric medicine, with an emphasis on the diagnosis and treatment of the most common childhood diseases.
- **Pediatric Gastroenterology** - This course provides an in-depth understanding of digestive tract diseases in children, with an emphasis on diagnosis, modern testing methods, and therapeutic approaches.
- **Nutrition and metabolic diseases in children** - Dr. Kofinova gives lectures and practical classes in which she discusses important aspects such as malnutrition, obesity and the role of micronutrients in the development of the child's organism.
- **Diagnostic ultrasonography in pediatrics** - she actively trains fellows and young physicians in the basics of abdominal ultrasonography, introducing them to the importance of **non-invasive diagnostic methods in pediatric gastroenterology**.

She always strives to **integrate real clinical cases into the training**, incorporating discussions on specific patient records to help students learn to think **diagnostically and analytically**.

Curriculum development and methodological materials

In addition to her active teaching work, Dr. Kofinova participates in **the development and updating of the curricula** so that they meet the modern requirements in medical education.

- She has contributed to updating **the pediatric gastroenterology curriculum** by introducing topics related to **non-invasive diagnostic methods, the microbiome and genetic aspects of disease**.
- Creates **clinical algorithms** that help undergraduate and graduate students structure the diagnostic process for diseases such as **liver fibrosis, inflammatory bowel disease, and malnutrition in children**.
- It develops **teaching materials on** the practical use of ultrasound equipment that are aimed at doctors in training.

Working with graduate and postgraduate students

For Dr. Kofinova, the work with students does not end with lectures and practical

classes - she actively **supervises graduate and postgraduate students** who want to deepen their knowledge in pediatric gastroenterology. She has mentored:

- **Dissertations** related to the diagnosis and treatment of inflammatory bowel diseases in childhood.
- **Pediatric Gastroenterology fellows**, introducing them to new diagnostic technologies and guiding them toward research developments in the field.

7. Critical comments and recommendations

Assessment of weaknesses and opportunities for improvement

The scientific and teaching activities of Dr. Denitsa Kofinova are distinguished by **high productivity, diversity and practical orientation**. She has a solid base of scientific publications, is active in the international scientific community and works on topical and significant topics in the field of pediatric gastroenterology. Despite her impressive achievements, there are several areas where she can build on her work:

1. Expanding international scientific cooperation

- Although she has participated in international scientific forums and publications, **more active collaboration with leading international research groups** would add even more value to her research.
- Involving **foreign partners in projects**, as well as participation in **large multicentre clinical trials**, would provide greater international recognition.

2. Increasing the number of publications in high impact factor journals

- The candidate has a significant number of scientific publications, including in indexed journals. In the future, it is advisable to focus on **more publications in prestigious journals with a high impact factor**, which will increase the visibility of her results and contribute to the international recognition of her scientific achievements.

3. Increased participation in the management of scientific projects

- Dr. Kofinova is involved in research projects, but could **take a leading role** in them as coordinator or principal investigator. This would allow her to develop leadership skills in the scientific field and expand her influence in academia.
- Actively applying for **national and international grants** will enable the funding of new, larger-scale research.

4. Expanding teaching with digital and interactive methods

- Incorporating **online courses, interactive lectures and simulation technologies** into the training would further enhance student engagement.

- The development of **didactic materials, video lectures or textbooks** that summarize current diagnostic methods in pediatric gastroenterology would be of great benefit to learners.

5. **Expanding roles in scientific and professional organisations**

- Dr. Kofinova is a member of ESPGHAN and other prestigious organizations, but **her more active involvement in working groups, committees and editorial boards** would enable more direct participation in shaping scientific priorities in the field.

Recommendations for future research and teaching development

- Increasing **publication activity** in prestigious international journals.
- Expand **collaboration with foreign researchers** and participation in international projects.
- Actively applying for **research project funding** and leading major research initiatives.
- Incorporate **innovative methods in teaching**, including the creation of digital learning resources.
- Expanding **leadership in scientific organizations** and participation in international expert groups.

8. Conclusion

Summary of the evaluation of the candidate

Dr. Denitsa Kofinova, Ph.D. possesses the necessary qualities to hold the academic position of Associate Professor in the field of Pediatrics. She has a **significant scientific contribution** proven by her publications, projects and participation in scientific conferences. Her work is highly interdisciplinary and distinguished by its practical applicability.

Her teaching activities are varied and include both core and specialist subjects. Her involvement in curricula and supervision of graduate and postgraduate students demonstrates her commitment to the academic development of students.

8. Conclusion

The summarized analysis of the aspects presented above show that the scientific metrics, professional qualifications and social authority of Dr. Denitsa Kofinova, Ph.D. fully meet the requirements of the Regulations on the Conditions and Procedure for Acquisition of Scientific Degrees and Holding the Academic Position of *Associate Professor* in.

Because of this and because of my personal impressions of her academic activity and professional collegiality, I recommend the distinguished members of the Scientific Jury to

vote positively for the appointment of the candidate Dr. Denitsa Kofinova, Ph.D. to the academic position of *Associate Professor* at the University Hospital "N.I. Pirogov" EAD.

Varna, 02.02.2022

Signature:

Prof. Dr. Ruzha Pancheva, PhD