

To the Chairman of the Scientific Jury,  
Appointed by order of the Rector of  
Medical University – Varna  
№ P-109-140/23.02.2023

## STATEMENT

From Assoc. Prof. Atanas Angelov Atanasov, MD, PhD  
First Department of Internal Diseases  
Medical University – Varna

Member of the Scientific Jury for the Procedure (SG № 102/23.12.2022)  
for acquirement of the academic position of “Associate Professor” in higher education area 7.  
“Healthcare and sports”, professional division 7.1. “Medicine” and scientific speciality  
“Cardiology”, opened for the needs of the Faculty of Medicine, First Department of Internal  
Diseases and the Clinic of Cardiac Surgery at  
“St. Marina” University Hospital – Varna

I have been appointed as a member of the Scientific Jury by order of the Rector of MU – Varna № R-109-140/23.02.2023, and by protocol № 1 of the first meeting of the Scientific Jury I am appointed to prepare a position statement on the procedure for filling the academic position of “Associate Professor” via competition. The procedure is open for the needs of the Faculty of “Medicine”, First Department of Internal Disease and the Clinic of Cardiac Surgery at “St. Marina” University Hospital – Varna. The procedure for the competition is in concordance with the legal requirements, and no procedural violations have been established. **Yavor Dimitrov Peychev, MD, PhD**, is the only candidate who has submitted documents to participate in the competition.

### 1. Brief information about the applicant

Dr. Yavor Peychev graduated with honours from the Medical University of Varna in 1988. From 1988 to 1990, he worked as a general practitioner. Since 1990, until now, he works as a physician at “St. Marina” University Hospital – Varna. Until 2005, he used to work as a physician at the Clinic of Cardiology, and since 2005 he works as a cardiologist at the Clinic of Cardiac Surgery, established in the same year. Since 1990, Dr. Peychev has been successively an “assistant professor”, “senior assistant professor” and “chief assistant professor” at the Department of Internal Diseases, Medical University – Varna. In 1994, he obtained his Certificate of Completion of Special Training in Internal Diseases, and in 1998, he acquired a CCST in Cardiology.

Dr. Peychev has additional professional qualifications:

- Professional qualification with recognised legal capacity in “Echocardiography – expert level, Transthoracic echocardiography, Transesophageal echocardiography, and Stress-echocardiography” (2013);
- Specialization in “Treatment of Cardiac Arrhythmias” at the Freiburg University, Freiburg, Germany (1992);
- Specialization in “Cardiopulmonary Resuscitation” – Lansing, Michigan, USA (1993).

Dr. Peychev has participated as a researcher in several randomised and controlled international clinical trials.

In 2018, Dr. Yavor Peychev acquired the educational and scientific degree of "Philosophy Doctor" (PhD) for his doctoral thesis on "*Prognosis and Prognostic Factors in Aortic Valve Replacement for Aortic Stenosis*".

## **2. Evaluation of the research and academic activity of the applicant – assessment of quantitative and qualitative indicators**

*Dr. Yavor Peychev has submitted the following research and publication records for review:*

- *A monograph:* Yavor Peychev. Calcific aortic stenosis. Sex-Specific Differences and Their Clinical Significance. First edition. Varna: University Publishing House, Medical University "Prof. Dr. Paraskev Stoyanov" – Varna, 2022. 148 p. ISBN 978-619-221-411-1;
- *Publications in scientific journals refereed and indexed in the world academic research databases – 2;*
- *Publications in peer-reviewed journals not refereed in the world academic research databases, or in edited collective and multi-author volumes – 10;*
- *Full-text publications in research journals exceeding the minimum requirements for holding the academic position of "Associate Professor" – 2.*

Dr. Peychev is the first author of 6 (40%) publications and the second author of 8 (53%). In one (7%) publication, Dr. Peychev is a third author.

The total Impact Factor of Dr. Peychev's publications is 38.202.

### ***Participation in congresses, seminars and training courses***

Dr. Yavor Peychev took part in 39 national congresses, conferences, seminars, symposia and training courses, and in 14 international forums, respectively. Dr. Peychev participated in the 2019 Scientific Sessions of the American Heart Association. He presented a work on the importance of comorbidity for the prognosis of operated patients with calcific aortic stenosis, for which he was honoured with Dr. Paul Dudley White Award. The American Heart Association gives this award to the highest-ranked abstracts for scientific contribution in the field of cardiology for the current year. Dr. Paul Dudley White is one of the founders of the American Heart Association, and his name is associated with the description of Wolf-Parkinson-White syndrome.

### ***Citations***

There are four citations of Dr. Peychev's scientific papers, three of which are in science journals refereed in the world academic research databases.

## **3. Research areas at which the scientific publications of the candidate are focused**

- Modern pharmacotherapy of heart disease;
- Non-invasive electrocardiology;
- Diagnosis and treatment of diseases of the operated heart with a focus on calcific aortic stenosis;
- Sudden cardiac death. Sudden death and the operated heart. Principles of cardio-pulmonary resuscitation.

## **4. Scientific and applied contributions**

Since the beginning of his scientific career, Dr. Peychev is interested in research work in the field of **electrocardiology**. In several publications and reports at scientific forums, he reported his own results and raised discussions on the following issues:

- *Electropathogenesis of severe ventricular ectopic activity in ischemic heart disease.* Using non-invasive ECG methods, the candidate attempted to identify accessible to the clinical practice markers of increased risk of severe ventricular ectopic activity: Dipyridamole-ECG stress test in combination with signal-averaged ECG (ventricular late potentials); Dipyridamole-ECG stress test in combination with QT interval dispersion analysis from the standard 12-lead ECG; analysis of the QT interval dispersion from the standard ECG in female patients with acute coronary syndrome.

- Back in 2000, Dr. Peychev conducted a study based on the idea of “*electrical*” disease in *hypertrophic myocardium* (now defined as “*electrical hypertrophy*” of the left ventricle). He experimented with non-invasive ECG methods (signal-averaged ECG in combination with analysis of the QT interval dispersion from the standard 12-lead ECG) to search for non-invasive markers of changes in the ventricular excitation and repolarisation investigating an isolated “pure” model of left ventricular hypertrophy (young, healthy athletes).

- *Electrocardiologic aspects of heart failure syndrome.* The candidate explored the hypothesis that in patients with heart failure, some non-invasive ECG indicators (heart rate recovery) obtained by Holter ECG during six-minute walk test, as well as the signal-averaged ECG parameters (ventricular late potentials) could be of clinical benefit during the surveillance of patients for assessing the risk of sudden death.

Several publications are devoted to the **pharmacotherapy of heart diseases:**

- Antiarrhythmic medication (with focus on atrial fibrillation);
- Antithrombotic therapy (thrombolytic therapy of acute myocardial infarction and antiplatelet therapy);
- Angiotensin-converting enzyme inhibitors and the role of the endothelium;
- Treatment with nitrate medication, modern views on nitrate tolerance.

A significant part of Dr. Peychev's professional career has been, and still is, at the Clinic of Cardiac Surgery. This influenced his scientific interests. Several of his research papers deal with the problem of “**sudden cardiac death and the principles of cardiopulmonary resuscitation**”. Particular attention is paid to the problem of sudden death in patients with operated heart.

Dr. Peychev's main interests as a cardiologist of almost 18 years practice with patients referred for and, respectively, undergone heart surgery are focused in the field of **calcific aortic stenosis** (AoS). His main scientific work on this subject is the monograph “*Calcific Aortic Stenosis. Sex-Specific Differences and Their Clinical Significance*”. The monograph is written in excellent professional language with the immanent for the author in-depth analysis of both the known and proven facts and the unsolved yet problems of this disease. Dr. Peychev examines in detail the epidemiology of calcific AoS. He reviews data from studies on mortality (cardiovascular and non-cardiovascular) and sudden cardiac death in these patients. The chapter devoted to the role of biological sex in the pathophysiology of calcific AoS is very interesting. Males have a greater burden of aortic valve calcification than females at a comparable hemodynamic load. More pronounced fibrosis of the valve leaflets is found in women – fibrotic phenotype of AoS. Various hypotheses suggest the existence of sex-specific biological mechanisms that account for the difference in aortic valve calcium burden between the two sexes. A separate chapter is devoted to the pathological changes in the heart of patients with calcific AoS – changes in the aortic valve, myocardial histopathology, left ventricular hypertrophy and remodelling, and the concept of “*anatomic*” vs “*electrical*” hypertrophy of the left ventricle. The author discusses sex-specific

differences in the process of ventricular remodelling and the importance of the type of remodelling for mortality. Biological sex has certain implications for the anatomic and hemodynamic progression of the disease. This implies a difference in the therapeutic approach to both sexes due to the sex-specific differences in cardiac injury, afterload, and myocardial response. Dr. Peychev emphasises that sex-specific differences with regards to the comorbidity and postoperative prognosis are insufficiently studied in individuals with calcific AoS. A sex-differentiated medication therapy with a potential impact on the progression of valvular obstruction and left ventricular remodelling is additionally discussed.

In the last chapter of the monograph, Dr. Peychev presents his data and results in 147 patients (68 women) with AoS referred for surgical valve replacement. The aim is to search for any sex-specific differences in the clinical manifestation of the disease and the postoperative prognosis. The reported data for increased prevalence of pulmonary venous hypertension and higher left ventricular ejection fraction in female patients are really interesting. The author explores and substantiates that in patients with calcific AoS, the cut-off limit for the left ventricular ejection fraction should be higher – 60%, which implies the need for reevaluation of the heart failure classification model applied today. On the basis of personal results, the author once again discusses the hypothesis for the existence of two types of clinically manifested left ventricular hypertrophy – “anatomical” and “electrical”. Similar to other authors, Dr. Peychev established a higher prevalence of comorbidities among women with severe AoS, associated with a worse long-term prognosis after surgical valve replacement.

The main contributions of this research work can be described as follows:

- This is the first study in this country, carried out on the prognosis of patients with calcific AoS after surgical aortic valve replacement with a prospective follow-up of the operated patients up to 10 years.
- It is the first attempt in this country to assess the sex-specific differences in patients with calcific AoS, considering their clinical significance.

### **5. Membership in scientific and professional organisations**

Dr. Peychev is a member of: Bulgarian Medical Association; Bulgarian Society of Cardiology; Association of Specialists in Echocardiography – “Varna-Echo”; “Heart-Lung” Association; American Heart Association; International Society of Electrophysiology.

### **6. Academic activities (teaching and mentoring)**

Dr. Yavor Peychev conducts exercises and lectures on Internal Diseases with medical students – both in Bulgarian and English. His teaching workload for the last 5 years accounts for the following:

- 2017/2018 – 144 hours;
- 2018/2019 – 237 hours;
- 2019/2020 – 241 hours;
- 2020/2021 – 235 hours;
- 2021/2022 – 249 hours.

Dr. Peychev is a member of the Internal Medicine examination committees for fourth- and sixth-year medical students. He trains and mentors intern physicians during their Internal Medicine Residency Program internship. He participates in the postgraduate training of physicians specializing in “Cardiology” and “Internal diseases”. Dr. Peychev lectures in the following academic courses:

- Cardiology – as an optional discipline for medical students;
- Postgraduate training of specialists in Cardiology;
- Postgraduate training of cardiologists in echocardiography – expert level; a professional qualification with recognised legal capacity.

**In conclusion**, Yavor Peychev, MD, PhD, is a cardiologist and a university professor with exceptional practice as a general internist. In his professional development, Dr. Peychev has acquired a large theoretical and practical experience in the treatment and follow-up of patients with operated heart. His research output and academic workload fully meet the requirements of DASRBA, the Implementation Rules of DASRBA and the Rules and Regulations for Academic Staff Development in Medical University – Varna. This provides me with the grounds to confidently recommend that the respected Scientific Jury vote positively for adjudication of the academic position “**Associate Professor**” to **Yavor Peychev, MD, PhD**, in the scientific speciality “**Cardiology**”, for the needs of First Department of Internal Diseases at the Faculty of Medicine, MU – Varna.

10/04/2023  
Varna

Assoc. Prof. Atanas Angelov, MD, PhD

