

## **EXPERT REVIEW**

**Prof. Dr. Penka Peneva Stefanova - Peeva**

Member of the Scientific Jury, appointed by Order № RD-26-2481/13.10.2021 of the Executive Director of UMHATEM "N.I. Pirogov"

Subject: Competition for the academic position of "professor" in the field of higher education  
7. Healthcare and sports in Professional field 7.1 Medicine and scientific specialty "Pediatric Surgery", announced in State Gazette, issue 61 of 23.07. 2021

### **Biographical data:**

Assoc. Prof. Dr. Hristo Shivachev, MD was born on September 8, 1969. He graduated in medicine in 1995 at the Medical University of Sofia. He started working in the 26th polyclinic in Sofia as a therapist on duty. Since 1997 he has been appointed as an intern at the Department of Pediatric Thoracic Surgery, Second Pediatric Surgical Clinic, Department of Pediatric Surgery, "N.I. Pirogov", where he still works. In 2011 he defended the scientific degree "Doctor" in Pediatric Surgery, and in 2012 he acquired the academic position "Associate Professor". From 2014 to 2017 he was Head of the Department of Pediatric Thoracic Surgery. From 2017 until now he has been the Head of the Pediatric Surgery Clinic.

### **Professional qualifications:**

In 2004 he acquired a specialty in "Surgery", in 2012 - a specialty in "Pediatric Surgery", in 2021 - a specialty in "Thoracic Surgery". Additional qualifications: Video-thoracoscopic surgery, Laparoscopic surgery, Bronchology 1st and 2nd level, Conventional gastrointestinal endoscopy 1st level. Specializations were held in Vienna, Naples, Genoa.

### **He is a member of:**

Bulgarian Medical Union - Deputy chairman  
Bulgarian Surgical Society  
Bulgarian Scientific Society of Pediatric Surgery  
European Union of Pediatric Surgery  
World Association of Pediatric Surgery

### **Teaching activity:**

Assoc. Prof. Shivachev has a serious classroom and extracurricular employment with graduates, students and PhD students, as well as the head of individual training - modules of the specialization program in "Surgery" and "Pediatric Surgery" and extensive teaching and research activities /data are reflected in the provided reference for the scientific-teaching activity of the candidate/. He actively participates in the semester exams in general and pediatric surgery. He is a co-author of the draft standard for Pediatric Surgery, as well as the national consensus for the treatment of peritonitis.



Assoc. Prof. Dr. Hristo Shivachev, MD presents a report on teaching hours, which shows that for the last three years there are over 100 teaching hours, working as a member of commissions, including as chairman of the commission for state exam in the specialty "Pediatric Surgery", he is deputy editor-in-chief of the journal "Emergency Medicine". The author has six doctoral students. Two of them defended their dissertations, the first in 2018 and the second in 2020. One doctoral student was expelled with the right to defense, which is forthcoming in May 2022, and the other three are about to complete their dissertations.

#### **Academic and scientific activity:**

The scientometric indicators of Assoc. Prof. Dr. Hristo Shivachev are in accordance with the requirements adopted by the Scientific Council of UMHATEM "N.I. Pirogov" EAD - Sofia and reflected in (Appendix 1) of the Regulations for the development of the academic staff.

#### **Evaluation of the research activity:**

One monograph, 50 publications and 86 reports are presented, which are distributed as follows:

- 20 articles in journals, referenced in world databases Scopus and Web of Science;
- 30 articles published in journals referred to in the National Reference List;
- 86 reports in scientific forums;

The monographic work is on the topic of DIAGNOSIS AND TREATMENT OF PARAPNEUMOTIC PLEURO-PULMONAL COMPLICATIONS IN CHILDHOOD. It is written on 186 pages and examines the development of complications of community-acquired pneumonia in childhood. The minimally invasive surgical techniques and interventional bronchoscopy used by the author for the treatment of parapneumonic complications are presented. An developed algorithm for diagnosis and treatment of pulmonary and pleural complications is presented.

The results of the application of the algorithm are presented and compared with the previous period, taking into account the reduction of the need for lung resection from 100 to 8%, reduction of surgical procedures, reduction of hospital stay and faster recovery of patients.

The presented material, which is a summary of the professional experience of Assoc. Prof. Shivachev, is extremely useful for surgeons, pediatricians and GPs in the complex and responsible problems of emergency surgery in childhood.

The scientific production of Assoc. Prof. Shivachev is sufficient in volume and quality to participate in the competition. It exceeds the required and set points both in the National Minimum Criteria and in those adopted by the Scientific Council of the Hospital as follows:



Group of indicators	Content	Professor	Professor	Professor
		Required According to the minimum national requirements	Available According to the minimum national requirements	Available According to the requirements of UMHATEM, „N.I.Pirogov”
A	Indicator 1	50	<b>50</b>	<b>50</b>
B	Indicator 2	-	-	-
B	Sum of indicators 2, 3 and 4	100	<b>100</b>	<b>100</b>
Г	Sum of indicators from 5 to 9	200	<b>364.35</b>	<b>1500</b>
Д	Sum of indicators from 10 to 12	100	<b>525</b>	<b>525</b>
E	Sum of indicators from 13 to the end	100	<b>500</b>	<b>500</b>
Ж	Indicator 23	10		
	or IF	10	<b>33.3</b>	<b>33.3</b>

Distribution by author's place:



Publications			Scientific reports		Total	
	Number	%	Number	%	Number	%
<i>Independent</i>			6	6.9%	6	4,4%
<i>First author</i>	9	18%	22	25.6%	30	23%
<i>Second author</i>	19	38%	28	32.6%	47	34.5%
<i>Third and subsequent author</i>	22	44%	30	34.9%	52	38.1%
<b>Total</b>	<b>50</b>	<b>100</b>	<b>86</b>	<b>100</b>	<b>136</b>	<b>100</b>

  

Publications			Scientific reports		Total	
	Number	%	Number	%	Number	%
<i>Independent</i>			6	6.9%	6	4,4%
<i>First author</i>	9	18%	22	25.6%	30	23%
<i>Second author</i>	19	38%	28	32.6%	47	34.5%
<i>Third and subsequent author</i>	22	44%	30	34.9%	52	38.1%
<b>Total</b>	<b>50</b>	<b>100</b>	<b>86</b>	<b>100</b>	<b>136</b>	<b>100</b>

Fifty two articles have been submitted for review in Bulgarian and foreign journals, and 23 are in English. 83 scientific reports on Bulgarian and foreign forums are attached, 9 of which are in English. Attached is a separate monograph, participation in a textbook and a guide. According to the official reference, there are 15 citations in referenced foreign publications and 30 citations in Bulgarian sources, referenced in the National Reference List. The total impact factor is 33.3.

Assoc. Prof. Shivachev is a professionally trained surgeon with a wide range of practical skills and abilities with a strong interest in major surgery, emergency surgery, thoracic surgery, neonatal surgery, pediatric oncology and the use of new information technologies in medicine and teaching practice. It is no coincidence that since 2017 Assoc. Prof. Shivachev is the head of the Clinic of Pediatric Surgery - UMHATEM "N.I. Pirogov".

The increase of the operative activity and the increase of the authority of this clinic both in the country and abroad is an indisputable fact. This broad practical activity allows him to realize his broad scientific interests, which in turn are reflected in the subject of his scientific work. His scientific activity in recent years has affected all major areas of pediatric surgery.

Regarding the distribution of works by topics:

In the field of THORACIC SURGERY, where Assoc. Prof. Shivachev is a leader in the country, the works are distributed as follows - the jointly developed protocols of management with specialists in maternal-fetal health and neonatology regarding prenatal diagnosis, fetal surgery, monitoring and determination of the duration of surgery congenital adenomatoid malformation and congenital lobar emphysema (20,14,16). The presented works have a serious multidisciplinary contribution in neonatal surgery and are the first of their kind



in our country. For the first time in Bulgaria, thoracoscopic treatment of congenital pleural bullae complicated by spontaneous pneumothorax was introduced (4,10).

Inflammatory diseases of the lungs and their surgical treatment are also professionally examined. Video-assisted thoracoscopic surgery (VATC) for parapneumonic pleural complications in childhood was introduced and described for the first time in Bulgaria (2,5,8, 25,27,34, 35, 37, 38).

The problem occupies a large part of scientific publications and communications. The thoracoscopic rehabilitation of pleural complications was developed and introduced by the author and management in case of pulmonary complications and introduction of interventional bronchoscopy in postoperative broncho-pleural fistulas was proposed. This method represents a major contribution to the treatment of these diseases in childhood (6,35).

The developed and implemented new approach in the diagnosis of PPPC, as well as the developed comprehensive diagnostic and treatment algorithm, allow reducing the need for lung resection from 100 to 8%. This is a very significant practical contribution in the field of pediatric thoracic surgery (9,11,12,23).

The published monograph on the diagnosis and treatment of acquired diseases of the lungs and pleura is the first of its kind in our specialized literature.

The presented echinococcal cysts with pulmonary and abdominal localization, the used surgical methods, the complications and the achieved results supplement the knowledge about this kind of parasitosis in childhood.

Experience in the treatment of foreign bodies in the respiratory tract and esophagus is presented. The various complications considered, as well as their behavior, early and late results are of practical contribution.

For the first time in Bulgaria, endoscopic treatment of congenital and acquired stenoses of the trachea and bronchi was introduced. Results from the operative and endoscopic treatment of this pathology are presented. (21,22,32,39,46,48,49) This experience contributes to a good coverage of the problem in the field of children's health.

A significant part of the works of Assoc. Prof. Shivachev are in the field of treatment of congenital and acquired diseases of the diaphragm in childhood. Experience and protocol of behavior are presented, covering prenatal diagnosis, fetal surgery, as well as the preparation and surgical treatment of such patients. The obtained results and survival are discussed (1, 18,20, 29,30,31,40, 47).

For the first time in Bulgaria, thoracoscopic plication of the diaphragm during relaxation was introduced (40). Of practical importance are the proposed indications for surgical treatment, methodology, as well as early and late results of the applied treatment.

Assoc. Prof. Shivachev's interest in congenital diseases of the chest is lasting and serious. He has considerable experience and observation of the problems of congenital deformities of the chest and develops tactics for their surgical treatment (15).

Under the leadership of Assoc. Prof. Shivachev, for the first time in Bulgaria, the mini-invasive Nuss technique for children with pectus excavatum was developed and implemented. The introduced protocol of management in various deformities of the chest



wall established the Pediatric Surgery in Sofia as a national center for the treatment of this kind of congenital anomalies.

The presented great experience of the clinic as a main unit in the treatment of congenital and acquired diseases of the esophagus defines it as a national center. The multifaceted aspects of congenital tracheo-oesophageal fistulas and esophageal atresia are considered. The applied treatment methods and the achieved results are presented in detail. The approach of management in the acquired tracheo-oesophageal fistulas is described and the achieved results are shared (21,27,35,51). This experience is shared in order to inform colleagues working in the field of pediatrics and surgery.

Historically, the problem of diagnosis and treatment of corrosive burns of the esophagus has been developed in the clinic since 1970 and has a strong continuity. An algorithm of management in corrosive esophagitis in the acute and chronic period is described and further developed, the applied methods and the achieved results are discussed. Both the management and the results of congenital and acquired strictures of the esophagus are reflected in detail. A very good analysis was made based on the extensive experience of the clinic in the application of various plastic and reconstructive operations with colon and stomach, as well as their late results. The shared scientific and postoperative results are a significant contribution to the world experience on the problem. (12,17,46)

The main problems in the diagnosis and treatment of GERD are considered. The algorithm introduced in practice includes imaging, fibro-optical esophago-gastroscopy with targeted biopsies, probe pH-metry. The main points in making a decision for surgical treatment are presented. Assoc. Prof. Shivachev also made a serious contribution to the problem, introducing laparoscopic fundoplication in childhood with very good results.

Assoc. Prof. Shivachev discusses the application of video-assisted thoracoscopic surgery in the treatment of benign diseases of the mediastinum, focusing on the early and late results of the application of this modern treatment (8,33). The author introduces thoracoscopic evaluation in biopsy of primary tumor lesions in the mediastinum, focusing on the effectiveness of the method and the results obtained. The management protocol and staging of tumors in childhood developed and introduced by the author allows to determine the treatment strategies (7,13,52).

Although the main interests and significant contributions in the research of Assoc. Prof. Shivachev are in the field of thoracic pediatric surgery, where he is a leading surgeon of national importance, he also has significant contributions in the field of abdominal and general pediatric surgery. One of the main areas of his scientific research is emergency surgery - these scientific papers are diverse and multifaceted, following the practical activities of pediatric surgery (3, 19,26,41,42,44,45).

In the field of pediatric emergency surgery, patients with neonatal ileus and peritonitis are presented in whom the used surgical methods of treatment are considered and the results of the treatment are presented (26). The laparoscopic surgical technique introduced by the author in the treatment of acute appendicitis and peritonitis in childhood is shared (24). The results of the treatment are discussed and an algorithm of behavior is proposed. This algorithm has a significant contribution to pediatric laparoscopic surgery. Assoc. Prof.



Shivachev emphasizes the importance of knowing the problems of acute abdomen in childhood, as well as the need to know the emergencies.

The author introduces in everyday practice the modern laparoscopic methodology for diagnosis and surgical manipulation of the abdominal non-palpable testis as part of the general surgical methodology for cryptorchidism (28, 43).

The scientific researches of Assoc. Prof. Shivachev in the field of pediatric oncology are serious. The need for a multidisciplinary approach to the treatment of childhood tumors is emphasized. The laparoscopic assessment and biopsy of primary tumor lesions introduced by the author - both benign and malignant in childhood - is presented. A management protocol and staging of abdominal tumors in childhood and determination of treatment strategies has been developed and introduced.

The Varia section covers general surgical problems. The great experience in the treatment of permagnetic lymphohemangiomas of the neck and mediastinum in neonates and children is presented. The challenges in the diagnosis and treatment of these congenital anomalies are considered. The experience of the clinic in the treatment of children with pulmonary and intestinal forms of COVID-19 infection is also presented (50).

The entire scientific production of Assoc. Prof. Shivachev has its contribution character and has a certain significance for the development of pediatric surgery in our country. Scientific works stand out especially in major thoracic surgery. In a number of serious scientific works he presents his experience and the experience of the clinic in which he works. Some of his scientific works discuss the methods of diagnosis, types of surgical treatment, postoperative complications and their control.

Given the serious volume and duration of monitoring and the reported results are of great importance for the development of algorithms, rules and style of management. These rules contribute to building a foundation on which the knowledge of future generations of surgeons will be built.

I agree with the proposed contributions.

## **APPLIED CONTRIBUTIONS**

1. Introduces and develops interventional bronchoscopy in childhood.
2. Introduces and develops the application of VATS in parapneumonic pleuropulmonary complications in childhood.
3. Introduces and develops the application of VATS and laparoscopy in childhood tumors.
4. Introduces and implements the application of VATS in congenital diseases of the mediastinum and diaphragm.
5. Introduces and implements laparoscopic methods in acute appendicitis and ovarian torsion in childhood.
6. Introduces and implements laparoscopic methods in hiatal hernia and plastic replacement of the esophagus in childhood.
7. Introduces and implements the minimally invasive technique for correction of chest deformities.
8. Introduces and implements laparoscopic methods in the treatment of cryptorchidism in childhood.



## SCIENTIFIC AND THEORETICAL CONTRIBUTIONS

1. Development and implementation of the overall protocol of diagnosis and management in parapneumonic pleuro-pulmonary complications in childhood.
2. Development and implementation of a protocol for diagnosis, follow-up and treatment of congenital lung diseases.
3. Introduction and development of a protocol for diagnosis, treatment and staging of tumors in childhood.
4. Introduction and development of a protocol for management of congenital chest deformities.
5. Introduction and development of a protocol for management of non-descending non-palpable testicles in childhood.

Thanks to his work and his scientific works, Assoc. Prof. Shivachev is known in our and international surgical circles. He has a certificate for 59 citations, 29 of which are abroad and 30 in Bulgaria. The total IF of Assoc. Prof. Shivachev is 33.3.

Assoc. Prof. Shivachev is a longtime lecturer. He conducts practical classes and lectures on pediatric surgery for students, postgraduates and doctoral students.

Assoc. Prof. Shivachev is a respected and highly educated colleague, he is a member of prestigious scientific organizations.

In addition to the mentioned qualities of Assoc. Prof. Shivachev as a scientist, practicing surgeon, lecturer and socially engaged colleague, he has a number of purely human virtues. He is polite, intelligent and correct. He is a respected lecturer, understanding and preserving the traditions of the university structures. He is an empathetic and responsible colleague in everyday life. Assoc. Prof. Shivachev is a responsible and respected by society person, honest and worthy scientist and colleague. He loves children, understands them and knows how to work with them. He is a powerful and worthy man and a surgeon.

## Conclusion:

From the analysis and evaluation of the submitted materials in the competition it can be summarized that the candidate meets the mandatory conditions and mandatory quantitative criteria and scientific and metric indicators for holding the academic position "Professor".

The candidate has proven professional and academic qualities.

For the above reasons, I confidently give a positive assessment and suggest to the esteemed members of the Scientific Jury to vote positively for the election of Assoc. Prof. Dr. Hristo Ivanov Shivachev, MD in the academic position "Professor" in the scientific specialty "Pediatric Surgery" for the needs of the Clinic of Pediatric Surgery of UMHATEM "N.I. Pirogov" EAD.

Date:  
12.11.21

Sofia

Signature: 