

STANDPOINT

from

Assoc. Prof. Todor Penchev Shamov, MD, PhD,

concerning:

Dissertation of Dr. Svetoslav Kirilov Todorov on the topic:

"Organization of Neurosurgical Care in Bulgaria - Comparative Analysis"

**for awarding the scientific and educational degree "Doctor", in the scientific specialty
Neurosurgery**

Dr. Svetoslav Todorov was born on 24.03.1988 and graduated with honors from the B. Brecht Language High School in Sofia. Pazardzhik with French and English, and in 2014 he graduated as a doctor at the Medical University - Pleven. In 2018 she graduated with a second Master's degree in Public Health and Health Management at the Medical University – Pleven. Since the beginning of 2015 he has been working in the Department of Neurosurgery at the University Hospital Burgas AD. Burgas. Since 2021, he has a recognized specialty in Neurosurgery. In 2024, he was a part-time assistant professor in Neurosurgery for students from the Faculty of Medicine of the University of Prof. Dr. Asen Zlatarov. In February 2025, after a competition, he was appointed as an assistant at the Department of Anesthesiology, Obstetrics, Surgery, Orthopedics and Traumatology, Urology, Neurosurgery, Emergency and Intensive Care Medicine at the same faculty. He is actively involved in the operational, consultative and scientific activities of the University Hospital, where he works. Since the beginning of 2022, he has been Deputy Director of UMHAT Burgas AD. Dr. Todorov is a member of BDNH and BASA. She regularly improves her qualification by participating in national and international conferences, as well as individual trainings in the country and abroad.

The dissertation submitted for consideration is written on 129 standard typewritten pages, including 6 tables and 48 figures. The content includes an introduction, a literature review (31 pages), purpose and objectives, material and methods (8 pages), results (25 pages), discussion (38 pages), conclusions, conclusion and contributions. The bibliography contains 104 titles, of which 90 in Latin and 14 in Cyrillic. There are 2 publications related to the dissertation, and two participations in a national and international conference with posters on the topic are presented.

The topic that the dissertation examines is topical and socially significant.

The literature review provides a historical review of Bulgarian neurosurgery and the Bulgarian Society of Neurosurgery, the regulatory framework for the implementation of the activity, the organization of national and regional consultants, the quality of the medical activity carried out, the neurosurgical care in Bulgaria carried out by doctors in relation to the population in 2021-2022, global neurosurgery, the experience of other countries in the organization of neurosurgical care: Germany, Turkey, Jordan, Spain, Iceland, Pakistan, USA – gender distribution in neurosurgery training, as well as neurosurgical care during Covid-19.

In the material and methods section, searches were made in Medline, PubMed, Google Scholar, Web of Science and Embase for studies related to neurosurgical care in Bulgaria, the seven main clinical pathways in 135 medical institutions in Bulgaria, according to which operations and therapy in neurosurgery are performed for a seven-year period, an electronic questionnaire was developed to establish the current state of neurosurgical care in Bulgaria, containing 4 main sections: Staffing of the neurosurgical clinic/department with 10 main questions; Hardware with 19 main questions; Operational activity of the neurosurgical clinic/department with 19 main questions; Accessibility of imaging diagnostics in the neurosurgical clinic/department with 3 main questions; the results of which are presented in the form of graphs and tables, summarizing the information from the questionnaire of the participants; a study has been made covering a comparative analysis between the organization of neurosurgical care in a developed European country – Germany and the current state of the organization of neurosurgical care in Bulgaria. Statistical methods used for processing and analysis are used.

The results and discussion sections present:

1. Analysis of the medical institutions with revealed neurosurgery structures in Bulgaria, demonstrating an asymmetrical distribution of neurosurgery clinics/departments in the country. There is also a pronounced asymmetry, which takes into account areas with a higher percentage of neurosurgery structures detected, at the expense of a smaller number of doctors working in these areas and revealed structures.
2. Analysis and trends of neurosurgical operations in Bulgaria – after a study of neurosurgical operations in 135 medical institutions for the period 2017 – 2023 on the 7 main clinical pathways, the results show that the maximum number of surgeries is reported in 2019 and the minimum – in 2020, which is a reflection of the Covid-19 pandemic. Discussion of brain surgeries not provoked by trauma, Discussion of treatment of head injuries, Discussion of peripheral and cranial nerve surgeries, Analysis of spinal cord surgeries
3. Discussion of neurosurgical operations in the city of Sofia. Burgas, demonstrating that neurosurgical operations in the city of Burgas. Burgas are performed in 5 medical institutions, some of which do not have revealed structures for neurosurgery.
4. Discussion of the conducted survey, including analysis of: Staffing, Hardware Supply, Operational Activity, Accessibility of Imaging Diagnostics.
5. Comparative analysis of the parameters of the organization of neurosurgical care in Bulgaria with those of Germany, showing significant differences between the two countries.
6. Applications of Feedforward networks in neurosurgery, as well as the application of the intercriteria analysis and discussion approach, which research highlights the importance of intelligent techniques in the field of neurosurgery, especially given the growing global burden of neurological diseases. The study provides information about the surgeries and therapies performed in the field of neurosurgery in Bulgaria.

The contributions from the presented dissertation are as follows:

1. An innovative study of the current state and organization of neurosurgical care in Bulgaria has been carried out. Problems and opportunities for improvement are identified.

2. An original study of the parameters of the organization of neurosurgical care in Bulgaria with those of Germany has been carried out and conclusions have been drawn.
3. Recommendations have been prepared to the structures in the country responsible for the organization of healthcare in order to improve the quality and accessibility of the neurosurgical care offered.
4. Artificial intelligence tools have been used to: predict the performed neurosurgical operations in hospitals and pathways; a comparative analysis of the links between diseases and surgeries was made; Data clustering has been done.

In conclusion, it can be said that the dissertation meets the criteria for awarding the educational and scientific degree "Doctor" in terms of structure and content, which is why I vote positively and would allow myself to recommend the members of the scientific jury to give their positive vote.

Prepared by: Assoc. Prof. Todor Shamov, MD, PhD

Заличено на основание чл. 5,
§1, б. „В“ от Регламент (ЕС)
2016/679