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ARTIGO DE PERSPECTIVA

Anaesthesia Training in Serbia: How Far from European Training Requirements?

Programa de Formação em Anestesiologia na Sérvia: A que Distância dos Requisitos de Formação Europeus?

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Afiliação
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ABSTRACT

The European Training Requirement in Anesthesiology Update (ETR), from the standing committee on Education and Professional Development (EPD) of the Section and Board of Anesthesiology of the European Union of Medical Specialties (UEMS) defines the standards and a basic structure of the training program for the specialization of anaesthesiology, pain therapy, and intensive care, which can be adapted in different countries according to their educational systems. Recommendations are based on modern pedagogical concepts of outcome or competency-based education. In Serbia, based on the Law on Health Care, The Ministry of Health establishes a lawful requirements and documents of rules on specialties and subspecialties for health workers and health associates, including the training program in anaesthesiology, resuscitation, and intensive care. Here we present the program of specialist training in Anaesthesia, Resuscitation, and Intensive Care in Serbia, comparing to ETR and pointing out the main strengths and places for improvement, to achieve a transparent, fair, reliable, and recognizable educational standard.

RESUMO

O *European Training Requirement in Anesthesiology Update* (ETR), do committee on Education and Professional Development (EPD) da Section and Board of Anesthesiology da European Union of Medical Specialties (UEMS) define os padrões e uma estrutura básica do programa de formação para a especialização em anestesiologia, terapia da dor e cuidados intensivos, que pode ser adaptado em diferentes países de acordo com os seus sistemas educativos. As recomendações baseiam-se em conceitos pedagógicos modernos de educação baseada em resultados ou competências. Na Sérvia, com base na Lei dos Cuidados de Saúde, o Ministério da Saúde estabelece requisitos legais e documentos de regras sobre especialidades e subespecialidades para profissionais de saúde e associados de saúde, incluindo o programa de formação em anestesiologia, reanimação e cuidados intensivos. Apresentamos aqui o programa de formação de especialistas em Anestesiologia, Reanimação e Cuidados Intensivos na Sérvia, comparando-o com o ETR e apontando os principais pontos fortes e os pontos a melhorar, de modo a alcançar um padrão educativo transparente, justo, fiável e reconhecível.

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INTRODUCTION

Competences of the specialist role in anaesthesia and intensive care have expanded to areas of patient management beyond operating theatre.[1] The European Training Requirement in Anesthesiology Update (ETR), from the standing committee on Education and Professional Development (EPD) of the Section and Board of Anesthesiology of the European Union of Medical Specialties (UEMS) defines the standards and a basic structure of the training program for the specialization of anaesthesiology, pain therapy, and intensive care.[2] This document is a framework for developing training programs in different countries according to their educational systems. Recommendations are based on modern pedagogic concepts of outcome or competency-based education.[3]

In Serbia, based on the Law on Health Care, The Ministry of Health establishes a lawful requirements and documents of rules on specialties and subspecialties for health workers and health associates, including the training program in

anaesthesiology, resuscitation, and intensive care.[4] However, its structure is still not harmonized with the European standards. Here we present the program of specialist training in Anaesthesia, Resuscitation, and Intensive Care in Serbia, pointing out the main strengths and places for improvement, to achieve a transparent, fair, reliable, and recognizable educational standard.

The aim is to open a discussion within different training models and enlighten the present status of education within European countries.

TRAINING IN ANAESTHESIA AND INTENSIVE CARE SPECIALTY IN SERBIA

The Ministry of Health establishes not only the structure of specialisation itself but defines all requirements for medical training in Serbia, including the allowed number of trainees' posts and permits for training every year.[4]

Minimal standards for hospitals that may be involved in training are defined by the law and are as follows:

- At least two specialists with a minimum of 5 years of experience practicing in the working department (which must be established as a separate organizational unit within the hospital);
- A hospital must have a plan for professional education submitted;
- The number of trainees is limited to two per specialist.

There are six medical faculties in Serbia. Regarding specialty training, they are legislative of the organization of the residency track and its supervision.

Hospitals open positions for trainees according to estimated needs and permits issued by the Ministry of Health.

The hospitals guarantee the uninterrupted educational process for young doctors.[4]

Structure of the Residency Track

The duration of the specialisation is 4 years (48 months). The educational program is divided into 5 separate domains:

1. General anaesthesiology (10 months);
2. Internal medicine and surgery (9 months);
3. Anaesthesia within surgical subspecialties (18 months);
4. Resuscitation (3 months);
5. Intensive care (8 months).

General anaesthesia, internal medicine, and surgery may be completed in the hospitals which opened trainee positions and employ young doctors only if the minimal standards defined by the Ministry of Health are fulfilled. If not, the medical faculty refers the trainee to the appropriate teaching hospital for rotations. Training within the domains 3, 4 and 5 is only available at the University teaching hospitals, which are training centres related to the medical faculties.

During the third year of training, trainees attend two semesters of theoretical classes.[4]

A separate list of competencies is developed for educational units. However, they are mostly defined as a list of knowledge and skills that must be accomplished during the assigned time (Table 2). Training in intensive care is the last domain in the program. The priority is management of the patient in the surgical ICU (Table 3).

Table 1. Structure of training in Anaesthesia, Resuscitation, and Intensive Care specialization in Serbia

General anaesthesia	Internal medicine and surgery	Anaesthesia (specific)	Resuscitation	ICU	Exam
10 months	Cardiology and cardiac intensive care (6 months) Pulmology (1 month) Nephrology (1 month) Surgery(1 month)	Paediatric anaesthesia (4 months)	Emergency medicine (3 months)	8 months	2 months for preparation
		Anaesthesia in neurosurgery (2 months)			
		Anaesthesia in ophthalmology (1 month)			
		Anaesthesia in ORL (1 month)			
		Anaesthesia in maxillofacial surgery (1 month)			
		Anaesthesia in endocrinology (1 month)			
		Anaesthesia in thoracic surgery (1 month)			
		Anaesthesia in cardiac surgery (2 months)			
		Anaesthesia in orthopaedic surgery (1 month)			
		Anaesthesia in urology (1 month)			
		Anaesthesia in obstetrics and gynaecology (1,5 months)			
		Anaesthesia in plastic surgery (1 month)			
		Ambulatory anaesthesia (15 days)			

Table 2. List of competences: the first domain (General anaesthesia)

Domain – General anaesthesia: 10 months		
Competence	**Assisting**	**Performance**
Preoperative assessment	50	200
Preoperative preparation for surgery	50	200
Premedication	50	200
Vein puncture	10	50
Vein canulation	50	200
Preparation of the infusion systems	10	100
Medication preparation (for induction)	10	100
Arrangement and check of anaesthesia machine	50	200
Manual ventilation	50	200
Direct laryngoscopy	50	200
Endotracheal intubation	50	200
Oropharyngeal tube placement	50	200
Endotracheal and oropharyngeal aspiration	50	200
Nasogastric tube placement	10	20
Performance of general balanced anaesthesia	50	100
Inhalation anaesthesia performance	20	30
TIVA	10	25
Spinal and epidural anaesthesia	50	50
Non-invasive hemodynamic monitoring	50	200
Intraoperative respiratory monitoring	50	200
Pulse oximetry analysis	50	200
Capnography analysis	10	30
Monitoring of the neuromuscular function	10	30
Urinary catheter placement and monitoring of urine output	10	100
Fluid therapy	50	200
Perioperative blood management	10	30
Blood gas analysis	10	50
Use of defibrillator	5	20
Sterilisation and cleaning of anaesthesia equipment	5	20
Arrangement and check of mechanical ventilation	10	20
Basic modes of mechanical ventilation	20	20
Arterial punction	10	40
Post anaesthesia care	50	200
Oxygen support	10	40
Postoperative acute pain management	50	200
PONV management	10	40

Training Programs are Time and Number Based

Graduated medical students, with two years of clinical medicine experience may apply for hospital employment and residency position. Appointed young doctors are involved in everyday work of 40 working hours weekly with 24-hour duties included. There is an obligatory supervision by the attending specialist. The medical faculties assign mentors from the practicing Faculty who are responsible for supervising the training process and trainees' progress.

Formative assessment is formulated through 5 obligatory colloquiums: general anaesthesia, cardiology, anaesthesia within surgical subspecialties, paediatric anaesthesia, and intensive care. These assessments are performed as feedback on theoretical knowledge.

The final exam consists of a written test, direct observation of practice (practical exam – real case), and oral examination. Exams are organized by the medical faculties where the trainee is referred to for the specialist training. After passing exam successfully, doctors gain the title of Specialist in Anaesthesia, Resuscitation, and Intensive Care.

All specialist doctors are subjected to recertification

Table 3. List of competences: the last domain (Intensive Care)

Domain – Intensive Care: 8 months		
Competence	**Assisting**	**Performing**
Management of the patient after cardiac arrest	10	10
Management of the craniocerebral injury	30	10
Management of the patient in comma	20	20
Management of the polytrauma	50	50
Management of haemorrhagic shock	50	50
Management of the septic shock	20	30
Management of the neurogenic shock	10	10
Management of the acute pancreatitis	20	20
Mechanical ventilation: clinical management of different modes of ventilation	50	50
Management of the patient on the non-invasive mechanical ventilation	30	30
Weaning from mechanical ventilation	50	50
Management of the patient with ARDS	10	5
Quadriplegic patient	5	5
Diagnosis of brain death	Not defined	-
Diabetic patient	20	20
Acid-base disorders	20	20
Management of the acute endocrinology patient	5	5
Management of the acute cardiac failure	50	50
Postoperative intensive care: Major vascular surgery	50	50
Postoperative intensive care: Cardiac surgery	10	5

program.[5] Every 7 years, they` must document a defined number of continuous medical education points (the minimum for each year is defined as well) together with the prove of continuous practice in anaesthesia and intensive care. Medical chamber is the legislative body which approves renewal of the licence and the level of competence.[5]

THE WEAKEST AND THE STRONGEST POINTS WITHIN THE SERBIAN RESIDENCY TRACK

The lack of harmonization with the European training requirements and the expected educational framework in Serbia is evident.[6] Crucial differences are:

1. The duration of the specialization is 4 years;
2. The training is time and number based;
3. Technical skills and knowledge are defined, but the educational methodology is not;
4. Absence of the national level of examination (National Board).

The program anticipates skills and knowledge that the trainee must possess without the assessment tool that proves they have achieved them. Objective Structured Clinical Examination – OSCE as the assessment tool is absent. Due to lack of the high-fidelity simulation centres, simulation is rarely used, in a few learning environments and objectives (technical skills, BLS, ALS). One of the consequences is the lack of focus on non-technical skills, which are not defined within the list of competencies within the training program.[7] The advantage is in the mentorship program which is very well developed. The traditional apprentice approach to professional growth is the historical foundation for a more modern approach. Additionally, young doctors must work under direct supervision which builds relationships and support within the working environment, as well as many opportunities for individual, informal feedback. The doctors are encouraged to be responsible for their progression.

Of course, this is not enough, and fundamental reorganization of the specialization training should take place.[6] The major obstacle is faculty development. Mentorship is the cornerstone of our education, however, very few have any formal education in medical education or any clear instructions on how to assess, document, or adapt training according to the trainees' progression or a lack of it.[6] To improve educational programs and harmonize them with today's expectations and standards, specialists involved in the education of young anaesthesiologists must have additional knowledge and competencies for performing, above all, active forms of teaching.[8] It is assumed that placing the core of education within medical faculties guarantees the quality of training. Unfortunately, it seems that medical faculties are not investing enough in faculty development and the role of the teacher (instructor) is transforming very slowly.

FUTURE DIRECTIONS

There is a large variability between the countries, cities, or even hospitals, in the existing infrastructure, technical and technological capabilities, number of medical personnel, teachers, mentors, and educational opportunities.

The presented structure of the training program in Serbia and disparities compared to the ETR do not mean that we do not have competent young anaesthesiologists in the country. Generations of doctors have been educated following programs that define the content of the teaching that is carried out, and not the goals that should be achieved or the competencies that society would like doctors to have. However, our anaesthesiology community needs some change in education to demonstrate that our physicians possess the quality that is expected of them today and that the educational process is objective, standardized, and transparent. In short, it is necessary to modernize the specialization and teaching plan and set clear goals that we want to achieve. First, as a society, we need to define what competencies our anaesthesiology and intensive care specialists should acquire during their education.

After that, we should direct our educational programs toward that goal. An important step is faculty development and more teachers that understand and perform modern, active forms of teaching and different, objective tools of assessment. The final aim is to make our doctors aware and responsible for acquiring all the knowledge, skills, and attitudes they should possess, and dedicate themselves to lifelong learning.

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VN, GJ: Conception, design, writing, supervision and critical revision of the manuscript

All the authors contributed equally to the design and writing of the manuscript. All approved the final version to be published

VN, GJ: Conceção, desenho, redação, supervisão e revisão crítica do manuscrito

Todos os autores contribuiram de igual forma para o desenho e escrita do manuscrito. Todos aprovaram a versão final a ser publicada

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