

**LABORATORY MEDICINE MANAGEMENT:  
LEADERSHIP SKILLS FOR EFFECTIVE LABORATORY****MENADŽMENT U LABORATORIJSKOJ MEDICINI:  
LIDERSKE VEŠTINE ZA EFIKASNU LABORATORIJU***Nada Majkić-Singh**Society of Medical Biochemists of Serbia, Belgrade, Serbia***Summary**

Forum of the European Societies of Clinical Chemistry (FESCC) decided that the FESCC Symposium for Balkan Region would be held each year in Belgrade and organized by the Society of Medical Biochemists of Serbia and Montenegro (SMBSM). Professor Victor Blaton, at the time President of the FESCC, supported the organization of the Symposium. Purpose of these Symposia has been to educate clinical biochemists from Balkan region to improve management, leadership skills for effective laboratories. As a result of these decision twelve symposia have been organized thus far very successfully. Here the most important Symposium topics will be reviewed. Also, the 13<sup>th</sup> EFLM Symposium for Balkan Region under the title »**Laboratory Medicine Management: Leadership Skills for Effective Laboratory**« (Belgrade, September 2017) is organized by EFLM and SMBS under the Auspices of the International Federation of Clinical Chemistry (IFCC), Ministry of Education, Science and Technological Development of Serbia and Ministry of Health of Serbia with participation of the European and domestic specialists in field of Laboratory Medicine.

**Keywords:** EFLM Symposia, Balkan region, Serbia, Educational Symposia, Laboratory Medicine

**Kratak sadržaj**

Forum of the European Societies of Clinical Chemistry (FESCC) je 2005. godine doneo odluku da se FESCC Symposium for Balkan Region održava u Beogradu svake godine u organizaciji Društva za medicinsku biohemiju Srbije i Crne Gore (SMBSCG) uz podršku Profesora Victor Blaton-a tadašnjeg predsednika FESCC-a. Svrha ovih simpozijuma je bila edukacija kliničkih biohemičara Balkanskog regiona u rukovođenju, liderstvu i veštinama u oblasti laboratorijske medicine. Kao rezultat ove odluke do sada je uspešno organizovano dvanaest simpozijuma. U ovom radu prikazuju se najvažnije oblasti koje su na simpozijumima izlagane. 13<sup>th</sup> EFLM Symposium for Balkan Region (Beograd, septembar 2013) pod nazivom »**Laboratory Medicine Management: Leadership Skills for Effective Laboratory**« organizuju SMBS i EFLM uz pokroviteljstvo IFCC i Ministarstava nauke i zdravlja Republike Srbije uz učešće evropskih i domaćih specijalista iz oblasti laboratorijske medicine.

**Ključne reči:** EFLM simpozijum, Balkanski region, Srbija, edukacioni seminari, laboratorijska medicina

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## Introduction

The Society of Medical Biochemists of Serbia has the pleasure to organize the 13<sup>th</sup> EFLM Symposium for Balkan Region being held under the title **»Laboratory Medicine Management: Leadership Skills for Effective Laboratory«** (Belgrade, September 2017). Forum of the European Societies of Clinical Chemistry (FESCC), now European Federation for Clinical Chemistry and Laboratory Medicine (EFLM) decided that the FESCC Symposium (EFLM Symposium) for Balkan Region would be held each year in Belgrade and would be organized by the Society of Medical Biochemists of Serbia and Montenegro (SMBSM), now Society of Medical Biochemists of Serbia (SMBS). Professor Victor Blaton, at the time President of the FESCC, supported the organization of the Symposium. Purpose of these Symposia has been to educate clinical biochemists from Balkan region to improve management, leadership skills for effective laboratories. As a result of these decision twelve symposia have been organized thus far very successfully. Here the most important Symposium topics will be reviewed.

The 13<sup>th</sup> EFLM Symposium for Balkan Region is organized under the Auspices of the International Federation of Clinical Chemistry (IFCC), Ministry of Education, Science and Technological Development of Serbia and Ministry of Health of Serbia.

## The review of previous Symposia

The first FESCC Symposium for Balkan Region entitled **»Education, Management and Standards in Laboratory Medicine«** was held in Belgrade between 10 and 12 June 2005, on the occasion of the 50<sup>th</sup> anniversary of the SMBSM. The symposium was coordinated by N. Majkić-Singh and V. Blaton. At the symposium, lectures were given by W. Huisman on accreditation, D. Burnett on ISO standard 15189:2003, M. Plebani on the external quality control program and L. Siekmann on establishing reference laboratories in laboratory medicine. The 2<sup>nd</sup> FESCC Symposium for Balkan Region entitled **»New Diagnostic Tools and Quality in Laboratory Medicine«** was held in Novi Sad on 17 and 18 October 2008. Within a section of the Symposium entitled **»Application of Quality Indicators in a Medical Laboratory«**, the following lectures were presented: **»The quality of the sample and its impact on clinical decisions«** (O. Sonntag) and **»ISO 15189 and inter-laboratory comparison programs«** (J. Hejsek). The 3<sup>rd</sup> FESCC Symposium for Balkan Region entitled **»Theory and Application of Evidence-Based Laboratory Medicine«** was held in Belgrade from 20 to 22 September 2007. At the symposium, oral presentations were given by: R. Horvat, V. Blaton, N. Majkić-Singh, D. Rogić, S. Sandberg, D. Aslan, J. Watine, and W. Oosterhuis. The following topics were discussed:

application of Evidence-Based Laboratory Medicine (EBLM), asking the right question, literature search, application of statistics in the estimation of diagnostic tests, such as systematic review articles, how to organize the development of guidelines and the difference between diagnostic and therapeutic guidelines. Experiences were shared in the field of EBLM in the Balkan region.

The 4<sup>th</sup> EFCC Symposium for Balkan Region entitled **»Impact of the Pre-analytical Phase on the Quality of the Laboratory Results«** was held in Belgrade from 19 to 20 June 2008. Lectures were given on the influence of pre-analytical factors on sample quality (S. Green), pre-analytical errors (P. Bonini), safety standards at sample collection (C. Mattiuzzi), pre-analytical phase in hematology (G. Banfi), errors in the pre-analytical phase (G. Lippi), quality of diagnostic sample and recommendations (W. Guder), stability of biological samples (GL Salvagno) and application of Lean and Six Sigma in the pre-analytical phase (A. Stanković).

Between 4 and 9 October 2010, the 17<sup>th</sup> Congress of Medical Biochemistry and Laboratory Medicine was held in Belgrade, during which the 6<sup>th</sup> EFCC Symposium for Balkan Region was organized on 7 October under the title **»Implementing Laboratory Automation, Quality and Efficiency«**. At the opening ceremony, Professor Victor Blaton was awarded an "Honorary Diploma" by the Society of Medical Biochemists of Serbia, as the highest form of recognition awarded for contribution to the development of clinical chemistry and laboratory medicine in Serbia and the Balkan Peninsula, but also on a wider scale of the professional community. The 55<sup>th</sup> anniversary of the Society of Medical Biochemists of Serbia was also marked on this occasion and the Society's President, professor Nada Majkić-Singh, spoke about the activities, achievements, goals, organization and historical development of the SMBS. During the 6<sup>th</sup> EFCC Symposium for Balkan Region, foreign and local experts presented the significance and application of automation and laboratory consolidation with the aim of applying **»Lean and Six Sigma«** philosophy to achieve efficiency in laboratories. Experts from Italy, Germany, Switzerland, Austria and Belgium shared their experiences with local experts. The following lectures were included: **»Implementing Laboratory Automation, Quality and Efficiency«** (S. Ignjatović and N. Majkić-Singh), **»Medical Errors: Pre-analytical Issue in Patient Safety«** (Mario Plebani) (1, 2), **»Pre-analytical Workstation as a Tool for Reducing Laboratory Errors«** (Giorgio Da Rin), **»Progressive Automation – the Solution of Choice for Improving Lab Efficiency«** (Jan-Michel Valid), **»Centralization, Consolidation and Automation in a Local Hospital Network«** (Gerd Hafner), **»Concepts for Lean Laboratory Organization«** (Gabriele Halwachs Baumann), **»Automation, Lean, Six Sigma – Synergy in Tactics to Improve Lab Efficiency«** (Davide Villa), **»Concepts for**

an In vitro Diagnostic Organization: Consulting Services to Develop Customized Economical and High Quality In Vitro Diagnostic Solutions« (Gerhard Wirl) and »Lean and Six Sigma Sample Analysis Process in a Microbiology Laboratory« (Vojislav Stoiljković). At a round-table discussion, conclusions and recommendations were presented and adopted in the field of laboratory medicine, with the goal of improving work efficiency and providing benefits to patients. The lectures were published in the Journal of Medical Biochemistry 2010; 29: 231–492 (<http://www.degruyter.com/view/j/jomb>; [www.dmbj.org.rs/jmb](http://www.dmbj.org.rs/jmb)).

It is worth to mention that a few other Symposia have been devoted to specific laboratory medicine topics as follows:

»**Proteins: from electrophoresis to proteomics**« (5<sup>th</sup> Symposium was held in Belgrade on 8 and 9 October 2009); Journal of Medical Biochemistry 2009; 28: 221–326 (<http://www.degruyter.com/view/j/jomb>; [www.dmbj.org.rs/jmb](http://www.dmbj.org.rs/jmb)); the symposium was dedicated to the 70<sup>th</sup> anniversary of the Faculty of Pharmacy of the University of Belgrade.

»**Biomarkers: From Standardization to Performance**«; 7<sup>th</sup> EFLM Symposium, 2011;

»**Vitamin D Deficiency: A new challenge for laboratory medicine**« Journal of Medical Biochemistry 2012; 31: 263–448 (<http://www.degruyter.com/view/j/jomb>; [www.dmbj.org.rs/jmb](http://www.dmbj.org.rs/jmb)) (3);

»**Integrative Algorithms in Patient Focused Laboratory Medicine**«, Journal of Medical Biochemistry 2014; 33:1 (1–134) (<http://www.degruyter.com/view/j/jomb>; [www.dmbj.org.rs/jmb](http://www.dmbj.org.rs/jmb)) (4);

»**Paediatric Laboratory Medicine: Some Aspects of Obesity, Metabolic Syndrome, Neonatal Screening, Reference Intervals**« (Journal of Medical Biochemistry 2015; 34:1(1–150) (<http://www.degruyter.com/view/j/jomb>; [www.dmbj.org.rs/jmb](http://www.dmbj.org.rs/jmb)) (5).

The 11<sup>th</sup> EFLM Symposium for Balkan Region was held in Belgrade on 14 May 2015, together with the celebration of the 60<sup>th</sup> anniversary of the Society of Medical Biochemists of Serbia, under the title »**Laboratory Medicine Specialist Focuses on the Patients Well-being**«. Similar to the First FESCC Symposium for Balkan Region, entitled »Education, Management and Standards in Laboratory Medicine«, held from 10 to 12 June 2005 on the occasion of the 50<sup>th</sup> anniversary of the SMBSM in Belgrade, the Eleventh Symposium, regarding its content, was a sequel that included discussions on the need for up-to-date experiences and skills in the laboratory work of laboratory medicine specialists to allow them to provide proper patient care. The symposium was chaired by Nada Majkić-Singh, Simone Zérah and Elizabeta Topić. The following topics were discussed: Introduction: European laboratory medicine specialist (Nada Majkić-Singh); Verification of *in vitro* medical

diagnostics (IVD) metrological traceability: Role and responsibilities of Laboratory Medicine specialists (Mauro Panteghini) (6, 7); Implementation, and the transposition of the Directive and the Register (Simone Zérah; Jean-Philippe Brochet; Towards common training frameworks for specialists in laboratory medicine (Wieringa Gilbert); Training of specialists in laboratory medicine in Serbia (Nada Majkić-Singh, Svetlana Ignjatović); Common Values in the Liberal Professions in Europe (Ian D Watson); Laboratory Medicine in the EU (Wytze Oosterhuis); The implementation of continuous professional development (Elizabeta Topić); Present situation of accreditation in Europe (Willem Huisman); Pre-analytical phase quality management – how and why? (Ana-Maria Šimunđić); Post-analytical phase quality management – new achievements (Mario Plebani); Application of the key processes quality indicator in Serbian medical laboratories (Zorica Šumarac). At a round-table discussion, students studying to obtain the professional title of a Magister of Pharmacy – Medical Biochemist discussed the position and achievements of laboratory experts in Europe and world-wide.

12<sup>th</sup> EFLM Symposium for Balkan Region was held in Belgrade on 26 May 2016, under the title »**Harmonization of total process: Influence of the extra-laboratory phases**«. The following lectures were included: Extra-analytical phases quality management – new achievements (Mario Plebani); Rational Use of Laboratory Tests: Harmonisation Case Study 2013–2015); Harmonization of pre-analytical phase—where are we now? (Zorica Šumarac); External quality assessment for the pre-analytical phase (Ana Maria Šimunđić); Quality Indicators – Experience of IFCC WG »Laboratory Errors and Patient Safety« on Project "Model of Quality Indicator" (Laura Sciacovelli); Application of biological variation (Marijana Dajak), Drug interferences with clinical laboratory test (Tatjana Cvetković); Systematic automated sample interferences testing – a step toward improvement of extra-analytical phase (Vera Lukić); Improving the impact of laboratory test results – are we brave enough (Dunja Rogić); Management of critical values in laboratory medicine – a tool for improvement clinicians decision (Eva Ajzner).

### **Laboratory Medicine Management: Leadership Skills for Effective Laboratory**

A **medical laboratory** or **clinical laboratory** is a laboratory where tests are usually done on clinical specimens in order to obtain information about the health of a patient as pertaining to the diagnosis, treatment, and prevention of disease.

Laboratory medicine is generally divided into two sections, each of which being subdivided into multiple units. These two sections are:

1. Anatomic pathology (with number of different units)
2. Clinical pathology, which includes:
  - Clinical Microbiology
  - Clinical Chemistry
  - Haematology
  - Genetics

Distributions of clinical laboratories in health institutions varies greatly from one place to another. The staff of clinical laboratories may include different laboratory workers that depends of country (for example: pathologists, clinical biochemists, medical biochemist, laboratory medicine specialists, biomedical scientist, medical laboratory technologists, etc.). Also in many countries there are three types of Medical Laboratories as per type of investigations carried out: 1) Clinical Biochemistry, 2) Clinical Pathology, and 3) Clinical Microbiology Laboratories (8). During Symposium lectures will be on Type of Medical Laboratory and Strategy, Laboratory Medicine Planning and Organization, Medical Laboratory Accreditation and Competence and Laboratory Medicine Environmental Health and Safety.

The Society of Medical Biochemists of Serbia as a member of the IFCC and EFLM greatly appreciates the role it has in the continuing development of our discipline according to the IFCC and EFLM mission and the Strategic Plan. The 13<sup>th</sup> EFLM Symposium for Balkan Region is organized under the title »**Laboratory Medicine Management: Leadership Skills for Effective Laboratory**« with participation of the European and domestic specialists in field of: Laboratory Medicine Planning and Organization (Control and operations; Specimen processing and flow; Laboratory informatics, result analysis, validation and interpretation; Data management and statistics; Financial management, etc.); Medical Laboratory Accreditation and Competence and Laboratory

Medicine (Laboratory quality and competence; Practical aspects of accreditation; Accreditation, risk assessment and quality management; Risk management in the pre-analytical phase of laboratory testing, etc.); Environmental Health and Safety (Efficient management of unexpected events and accidents in laboratory medicine; Possible use of software modules; Reports form; categorization, actions; Register of frequent pre-analytical incidents; Statistics and reports, etc.). These topics will be presented by European lecturers and domestic specialists in field of Laboratory Medicine: Paul Collinson, Ivan Brandslund, Mario Plebani, Per E. Jørgensen, Sverre Sandberg, Bernard Gouget, Matthias Nauck, Herbert Stekel, Tomas Zima and Ciprian-Valentin Mihali) and from Serbia (Nada Majkić-Singh, Vera Lukić, Snežana Jovičić, Nataša Bogavac-Stanojević, Svetlana Ignjatović, Zorica Šumarac, and Jelena Kotur-Stevuljić.

Students of Medical Biochemistry from Pharmaceutical Faculty, Belgrade University will present their view on leadership and management in in laboratory medicine under the title: **NEXT Generation Leaders** (Authors: Ana Đorđević, Tamara Stamenić), Team of Medical Biochemistry Students, Belgrade Pharmacy Students' Association (BPSA)

On behalf of the Society of Medical Biochemists of Serbia and the European Federation of Clinical Chemistry and Laboratory Medicine (EFLM), we would like to welcome all our distinguished lecturers and thank them for their participation in the 13<sup>th</sup> EFLM Symposium for Balkan Region. Their presence gives very high recognition and prestige to this Meeting, which will influence the development of clinical chemistry and laboratory medicine in the Balkan region.

### Conflict of interest statement

The authors stated that they have no conflicts of interest regarding the publication of this article.

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