



Uručenje Diplome diplomiranom farmaceutu Ani Korac



Uručenje Diplome diplomiranom farmaceutu-medicin-  
skom biohemičaru Anđelu Beletiću

## **CENTRALNA LABORATORIJA I INSTITUT ZA MEDICINSKU BIOHEMIJU** **CENTRAL LABORATORY & INSTITUTE FOR MEDICAL BIOCHEMISTRY**

*Nada Majkić-Singh*

Pri Medicinskom fakultetu u Beogradu 1950. godine otvorena je prva biohemijska laboratorija, a 1952. godine na Internoj klinici B 13 diplomiranih farmaceuta formiralo je CENTRALNU KLINIČKU LABORATORIJU kao preteču današnjeg Instituta za medicinsku biohemiju Kliničkog centra Srbije. Centralna klinička laboratorija odigrala je značajnu ulogu u razvoju biohemijske službe i medicinske biohemije kao nove zdravstvene grane u nas. Navedeni diplomirani farmaceuti uticali su i na formiranje biohemijskih laboratorija na klinikama i institutima Medicinskog fakulteta u Beogradu.

U Poliklinici Univerzitetskog kliničkog centra 10. 10. 1987. godine formirana je nova moćna laboratorija, a 1. 12. 1987. godine i laboratorija u Urgentnom

In 1950 the first biochemical laboratory was opened at the Medical Faculty in Belgrade. In 1952, at the Internal B clinic, thirteen graduated pharmacy students formed CENTRAL CLINICAL LABORATORY as the precursor of the today's Institute for Medical Biochemistry of the Clinical Center of Serbia. Central Clinical Laboratory made huge contribution in the development of the biochemical service and medical biochemistry as a new health sector in our country. Above-mentioned graduated pharmacists had a huge role in forming biochemical laboratories at the clinics and institutes of the Medical Faculty in Belgrade. On October 10th 1987 new powerful laboratory at the Polyclinic of the University Clinical Center was formed and on December 1st 1987 Laboratory in Emergency Cen-

centru. Ove laboratorije činile su Kliničko-biohemijsku službu u Univerzitetskom kliničkom centru, a njoj su 1991. godine priključene i sve druge kliničko-biohemijske laboratorije. Ovim objedinjavanjem 1992. godine formiran je INSTITUT ZA MEDICINSKU BIOHEMIJU (IMB) Kliničkog centra Srbije. Na ovaj način uspostavljen je stručno-metodološki i referentni centar za oblast kliničko-biohemijske dijagnostike koji je odigrao ključnu ulogu u uvođenju savremene dijagnostike u našoj zemlji, zatim u standardizaciji, unifikaciji i kontroli rada u svim laboratorijama u zemlji.

U toku celokupnog svog postojanja i razvoja Institut je sa velikim entuzijazmom, odgovornošću i zalaganjem svih zaposlenih obavljao uspešno sledeće delatnosti:

*Zdravstvenu delatnost*, odnosno kliničko-biohemijsku laboratorijsku dijagnostiku kao rutinsku i visoko-specijalizovanu, analizom svih dostupnih bioloških materijala. U Institutu se analizira preko 500 kliničko-biohemijskih sastojaka iz svih oblasti medicinske biohemije. Godišnje se uradi oko 6 miliona analiza. Stručnjaci Instituta su svojim znanjima i umećem omogućili uvođenje savremene kliničko-biohemijske laboratorijske dijagnostike za potrebe svih grana medicine koje se praktikuju u Kliničkom centru Srbije.

*Naučno-istraživačku delatnost* u okviru koje saraduje sa svim Institutima KCS i drugim srodnim institucijama, što je omogućilo da se kroz ovu aktivnost realizuje izrada brojnih magistarskih i doktorskih teza, kao i specijalističkih i subspecijalističkih radova za potrebe Kliničkog centra Srbije, Medicinskog i Farmaceutskog fakulteta i drugih srodnih institucija. Ovakva saradnja omogućila je objavljivanje brojnih naučnih radova, kao i učestvovanje na domaćim i međunarodnim skupovima stručnjaka napred navedenih institucija, koji su zbirno prikazivani kroz godišnjake KCS i naučne projekte koje je finansiralo Ministarstvo za nauku i tehnologije.

*Obrazovnu delatnost* kao nastavnu bazu Farmaceutskog i Medicinskog fakulteta i drugih srodnih fakulteta i škola, putem koje se kadrovi svih profila upoznavaju i obučavaju najnovijim vrstama tehnika, postupaka i metoda u oblasti laboratorijske medicine. Na ovaj način Institut je pravi edukativni centar za oblast medicinske biohemije.

*Stručno-metodološku delatnost* kao referenta ustanova u Republici Srbiji i Saveznoj Republici Jugoslaviji. Stručnjaci Instituta za medicinsku biohemiju učestvovali su u izradi svih do sada objavljenih stručno-metodoloških uputstava za oblast medicinske biohemije na nivou Republičkog i Saveznog ministarstva zdravlja. Sa Društvom za medicinsku biohemiju Jugoslavije (DMBJ) Institut je organizator spoljašnje kontrole kvaliteta (YUNEQAS) kao i nadzora nad stručnim radom u laboratorijama u RS. Spoljašnja kontrola kvaliteta se kao jedinstvena mera sprovodi u našem zdravlju, čime je omogućeno stalno unapređivanje rada svih kliničko-biohemijskih laboratorija u SRJ. Time se doprinosi visokoj tačnosti laboratorijskih usluga, eliminisanju nepotrebnih ponavljanja ove vrste dijagnostike,

ter of the same center was formed. These laboratories at that time created Clinical-biochemical service at the University Clinical Center and in 1991 all other clinical-biochemical laboratories were attached to this service. With this merger in 1992 INSTITUTE FOR MEDICAL BIOCHEMISTRY (IMB) of the Clinical Center of Serbia was formed. In this way professional-methodological and reference center for the area of clinical-biochemical diagnostics was established. It made important contribution in implementing modern diagnostics in our country, in standardization, unification and workflow control in every laboratory in the country. During its development and presence, with huge enthusiasm, responsibility and ardency of all employees, the Institute successfully fulfills the following activities:

*Health activity*, i.e. clinical-biochemical laboratory diagnostics as routine and highly specialized with the analysis of all available biological material. At the Institute are analyzed over 500 clinical biochemical compounds from every field of medical biochemistry. Six million analyses are run annually. With knowledge and skill, experts of the Institute have enabled introduction of the modern clinical-biochemical laboratory diagnostics for the needs of all areas of medicine, which are practiced at the Clinical Center of Serbia.

*Scientific and research activity* in cooperation with every Institute of Clinical Center of Serbia and other affiliate institutions, which produced numerous thesis by Masters of Science and Doctors, as well as specialist and subspecialist papers for Clinical Center of Serbia, Medical and Pharmaceutical Faculty and other affiliate institutions. Such cooperation led to publishing various scientific papers, as well as participation at the national and international meetings of the experts from the above-mentioned Institutions, which are jointly presented in the annual journals of the Clinical Center of Serbia and scientific projects financed by Ministry for Science and Technology.

*Educational activity* is the tutoring base of the Pharmaceutical and Medical Faculty and other affiliate faculties and schools. Students of all sections learn about new techniques, practices and methods in the field of laboratory medicine. In this way, Institute is the genuine education center for the field of medical biochemistry.

*Professional-methodological activity* is performed by Institute as the referent institution in Republic of Serbia and Federal Republic of Yugoslavia. Experts of Institute for Medical Biochemistry have participated in the making of all published professional-methodological guidebooks for the field of medical biochemistry on the level of Republic and Federal Ministries of Health. Together with the Yugoslav Society of Medical Biochemistry (YuSMB), Institute is the organizer of the external quality assessment (YUNEQAS) as well as surveillance over the expert workflow in the laboratories in Republic of Serbia. External quality assessment is implemented as the unique measure in our health system, which enables continual progress of workflow of all clinical-biochemical laboratories in Fe-

racionalizaciji i uštedi materijalnih sredstava. Rešenjem Saveznog ministarstva za rad, zdravstvo i socijalnu politiku Institut za medicinsku biohemiju zadužen je za ispitivanje i kontrolu kvaliteta dijagnostičkih sredstava, čime se državnoj upravi omogućava obezbeđenje samo kvalitetnih uvoznih materijala.

*Druge aktivnosti.* IMB je organizator brojnih stručnih i naučnih manifestacija, a stručnjaci IMB su članovi brojnih komisija i asocijacija u zemlji i inostranstvu. Institut za medicinsku biohemiju ovom aktivnošću omogućava uvođenje i sprovođenje standardnih postupaka rada u laboratorijskoj dijagnostici, formiranje protokola i sprovođenje uniformne organizacije rada u svim laboratorijama u zemlji.

*Uvođenje sistema kvaliteta u laboratorije Instituta.* Da bi unapredio svoj rad i održao kvalitet svojih usluga, Institut za medicinsku biohemiju KCS je kao jedini u Kliničkom centru Srbije, a takođe i u Saveznoj Republici Jugoslaviji, uveo sistem menadžmenta kvalitetom prema standardu ISO 9001, a zatim i akreditovao sve svoje laboratorije za oblast dijagnostike kojom se bavi, a sve u cilju posvećenosti prema korisnicima svojih usluga – lekarima i pacijentima.

Naime, nakon sprovedenih svih neophodnih aktivnosti Institut za medicinsku biohemiju KCS dobio je 7. februara 2001. godine Sertifikat ISO 9001:2000, reg br. 080 od Društva za sertifikaciju i nadzor sistema kvaliteta d.o.o. (JUQS), kojim se potvrđuje da je Institut uspostavio sistem menadžmenta kvalitetom u celom Institutu. Sertifikat se odnosi na sledeći delokrug rada: medicinska biohemija, kliničko-biohemijska laboratorijska dijagnostika, sprovođenje spoljašnje kontrole kvaliteta rada i ispitivanje dijagnostičkih sredstava-reagenasa i opreme. Institut za medicinsku biohemiju 15. 11. 2001. godine dobio je od Jugoslovenskog akreditacionog tela (JUAT), kao samostalnog organa Vlade SRJ i Rešenje o akreditaciji svih svojih laboratorija (br. 01-17/2001), čime se potvrđuje da ovaj Institut kompetentno obavlja svo-ju delatnost prema savremenim principima rada u pogledu organizacije i metodologije rada.

Ciljevi primene sistema kvaliteta u Institutu definisani su u Poslovniku o kvalitetu i Izjavi o politici kvaliteta. Izjava o politici kvaliteta je jasno definisano polazište za uspostavljanje i primenu sistema menadžmenta kvalitetom. Ona sadrži ciljeve i osnovne principe rada IMB KCS i opisuje načine ostvarivanja ciljeva i principa rada zasnovanih na dobroj laboratorijskoj praksi. Sistem kvaliteta Institut za medicinsku biohemiju KCS ostvaruje poštujući princip usmenosti na korisnike lekare i pacijente pružanjem kvalitetne i pravovremene usluge, informisanjem i usavršavanjem, praćenjem razvoja kliničko-biohemijske dijagnostike, uvođenjem savremenih i efikasnih metoda ispitivanja, tačnim i pravovremenim nalazima. Sve to postiže se odgovarajućom organizacijom i tehnologijom rada, efikasnim protokom biološkog materijala, dobrim analitičkim radom i protokom podataka.

deral Republic of Yugoslavia, contributes high precision of the laboratory services, eliminates unnecessary repetitions of this type of diagnosis, reduces expenses and costs. With the decree of the Federal Ministry for Labor, Health and Social Politics, Institute for Medical Biochemistry is in charge of assessment and control of quality of diagnostic resources, thus allowing state administration to ensure import of quality material only.

*Other activities.* Institute for Medical Biochemistry is the organizer of expert and scientific manifestations, and the experts of Institute are members of numerous commissions and associations in the country and abroad. Institute for Medical Biochemistry with this activity provides and implements standard procedures of workflow in the diagnosis, forming of protocol and implementing uniformed organization of workflow in all laboratories in the country.

*Implementing quality system in laboratories of the Institute.* In order to improve workflow and maintain quality of services, Institute for Medical Biochemistry of Clinical Center of Serbia as the only in Clinical Center of Serbia, as well as in FRY, have introduced system for quality management according to standard ISO 9001, and afterwards received accreditation for all laboratories in the field of diagnosis, in order to serve its users – doctors and patients. Upon implementing all necessary activities, Institute for Medical Biochemistry of Clinical Center of Serbia has received on February 7th 2001, Certificate ISO 9001:2000, Reg. No. 080 by the Organization for Quality Systems Certification (YUQS), which confirms that the Institute has established system for quality management in the whole Institute. The certificate refers to the following areas of workflow: medical biochemistry, clinical-biochemical laboratory diagnostics, implementing external quality assessment and assessment of diagnostic resources – reagents and equipment. During November, Institute for Medical Biochemistry has received from Yugoslav Accreditation Body (JUAT), independent agency of FRY government, Decision on accreditation of all laboratories, which confirms that this institute is competent for implementing activities according to modern principles of workflow concerning organization and methodology of workflow.

It should be pointed out that Institute for Medical Biochemistry of Clinical Center of Serbia is the only health institution in the field of laboratory medicine that has received the mentioned certificates that are of the enormous significance for ensuring quality workflow.

Aims of the implementation of the quality system at the Institute are defined in the Quality Policy and Declaration on Quality Politics. Declaration on Quality Politics has clearly defined outset for establishing and implementing system for quality management. It is consisted of aims and basic principles of Institute for Medical Biochemistry of Clinical Center of Serbia and describes ways of fulfilling aims and principles of the workflow based on good laboratory practice. Quality system is fulfilled by Institute for Medical Biochemistry

Institut je navedeni sistem uspostavio upravljanjem resursima (kadrovima, opremom, potrošnim materijalima, obezbeđenjem uslova radne sredine higijena i čistoća radnih prostorija, urednost radnih mesta, sistematski pregledi zaposlenih, upotreba zaštitne opreme, primena mera bezbednosti na radu) i upravljanjem procesima rada (podržavanje definisane tehnologije rada, uvođenje novih metoda ispitivanja), proces laboratorijskog ispitivanja i metrologija (evidentiranje opreme, rukovanje, podešavanje, periodične provjere, baždaranje). Laboratorijsko ispitivanje je u skladu sa dokumentima sistema menadžmenta kvalitetom koja obuhvataju prijem zahteva, prijem uzoraka, uzimanje uzoraka u laboratorijama Instituta, trijažu biološkog materijala, rukovanje uzorcima, ispitivanje uzoraka, izdavanje rezultata i komunikaciju s lekarima i pacijentima (klijentima). Merenje i podrška razvoju sistema menadžmenta kvalitetom obavlja se prema zahtevu standarda analizom podataka i informacija i stalnim poboljšavanjem procesa rada. Uputstvom »Merenje stepena zadovoljstva korisnika usluga« u Institutu se precizno definišu: kvalitet usluge, tj. tačnost rezultata ispitivanja, rok dostavljanja rezultata, i sposobnost laboratorija Instituta da odgovore na hitne zahteve, kao parametre za praćenje zadovoljstva korisnika (lekara i pacijenata). Merenje i nadzor procesa u okviru Instituta obuhvata stalni nadzor i kontrolu postupaka ispitivanja, nadzor i kontrolu hemikalija i opreme koji se koriste u postupcima ispitivanja, unutrašnju kontrolu rada, međunarodnu spoljašnju kontrolu rada (RIQAS kontrola) i jugoslovensku kontrolu kvaliteta rada (YUNEQAS).

Za potrebe akreditacije od strane Jugoslovenskog akreditacionog tela (JUAT) opisane su sve metode koje se koriste pri radu, kao i dokumenti i uputstva koja se odnose na rukovanje i rad sa opremom.

Može se zaključiti da je primena sistema menadžmenta kvalitetom Institutu omogućila:

1. dobru komunikaciju i saradnju s klijentima (lekarima i pacijentima) Instituta
2. obezbeđivanje preciznog sprovođenja definisane tehnologije rada
3. efikasnost u radu kroz sveobuhvatno planiranje aktivnosti i resursa
4. optimalno korišćenje postojećih kapaciteta i izvršavanje postavljenih zadataka
5. pravilnost rada u svim fazama laboratorijskog procesa
6. tačnost rezultata laboratorijskog ispitivanja kao imperativnog zahteva
7. dobru komunikaciju između svih kategorija radnika i rukovodećih struktura
8. dobru komunikaciju sa stručnim službama KCS
9. blagovremeno rešavanje reklamacija na kvalitet usluga.

To znači da je primena politike kvaliteta i dokumenata sistema kvaliteta Institutu za medicinsku biohemiju omogućila da u otežanim uslovima rada doprinosi potpunom izvršavanju zadataka Instituta kao i

of Clinical Center of Serbia in the way that Institute respects principle of being oriented toward users doctors and patients, providing quality and timely services, informing and developing, following development of clinical-biochemical diagnostics, establishing modern and efficient methods of research, precise and timely findings, which is achieved with proper organization and technology of workflow, efficient flow of biological material, good analytical workflow and data flow.

Institute has established this system by resources management as well (staff, equipment, consumables, providing conditions of the working atmosphere

hygiene and tidiness of the premises, regular health checks of the employees, usage of the protective equipment, safety regulations application), management of the workflow processes (support of the defined work technology, implementing of the new research method.) Laboratory research is in accord with documents on system for quality management, which is consisted of reception of request, reception of samples, taking of the sample in the laboratories of the Institute, triage of the biological material, handling with the samples, issuing results and communication with doctors and patients (clients). Measurement and support for the development of the system of quality management is performed according to the request of the standard by analysis of the data and information and continual enhancement of the workflow. In the handbook »Measurement of the level of the service users satisfaction« it is precisely defined:

Quality of the service, i.e. accuracy of the research result,

Date of issuing the result,

Capability of laboratory to stand up to urgent demands, which are parameters for assessing users' satisfaction (doctors and patients).

Measurement and surveillance of the process at the Institute comprises constant supervision and activity control of the research, supervision and control of the chemicals and equipment that are used in research, internal workflow control, international external workflow control (RIQAS control) and Yugoslav workflow quality control (YUNEQAS).

All methods that are used during workflow as well as documents and handbooks on handling and running the equipment are described by the accreditation by Yugoslav Accreditation Body (JUAT).

It can be concluded that the implementation of the system of the quality management has provided for the Institute:

1. Good communication and cooperation with the clients (doctors and patients) of the Institute
2. Providing precise implementation of the defined workflow technology
3. Efficiency in workflow through overall planning of the activities and resources
4. Optimum exploit of the current capacity and fulfilling tasks
5. Accuracy of workflow in every phase of the laboratory process

da korisnicima usluga Instituta pruži sigurnost u pogledu kvaliteta.

Sve napred navedene aktivnosti ostvarene su izuzetnim angažovanjem svih zaposlenih u Institutu za medicinsku biohemiju, a stručnjaci Instituta su napravili temeljne planove za uvođenje sistema kvaliteta u sve laboratorije u zemlji. Iz navedenog se vidi da je kroz sve svoje aktivnosti Institut posvećen pružanju dobre i pravovremene laboratorijske dijagnostike, kao važne karike u dijagnostikovanju i lečenju pacijenata.

6. Accuracy of results of the laboratory research as an imperative
7. Good communication between all categories of workers and managing structures
8. Good communication with expert services of the Clinical Center of Serbia
9. Timely answer to complaints on quality of service

It means that the implementation of the politics of quality and documents on quality system provided for the Institute for Medical Biochemistry to contribute in difficult circumstances total fulfillment of the tasks of the Institute as well as providing security for the users of the Institute services concerning quality.

All mentioned activities are fulfilled with the exceptional engaging of all employees at the Institute for Medical Biochemistry. Experts of the Institute have made profound plans for implementing quality system in all laboratories in the country. It can be concluded from the presented facts that through all its activities Institute is dedicated to providing good and timely laboratory diagnostics, as an important factor in the diagnostics and treatment of the patient.