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International Federation of Clinical Chemistry and Laboratory Medicine

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EDITORIAL

Message from the eNews Editor

by Katherina Psarra
eNews Editor

Dear colleagues,

I am reading my November editorial and I am thinking of the great times we lost– for now, of course. And then I am thinking of the worries we would have if 2200 people from all over the world had met exactly during the first days of the O variant appearance, not to mention the days when new measures were taken in Germany.

Our President explains clearly why the EB took the decision to postpone EuroMedLab for April. Think of spring in Munich, when hopefully everything will be better, the days will be longer and warmer and perhaps we can forget our disappointment from last week. In addition, we will celebrate the IFCC Global Lab Medicine Week (GLMW), a new IFCC initiative that is quite timely given how laboratory medicine has proven its importance during the pandemic. In this issue you can read a lot of reports about laboratory medicine at its best in different parts of the world.

It is with great sadness that we read the obituary of Lina Khorovskaya, a gentle lady, an outstanding scientist, a long standing member of IFCC, EFLM, and AACC. The 5th coronavirus wave is explained in a very interesting article by Dr. Bernard Gouget. A lot of knowledge acquired during these last months will definitely be very useful for the response to this and other respiratory infections.

Merry Christmas and Happy New Year, dear colleagues! Try to stay safe and enjoy yourselves as well.

Katherina Psarra

News from the IFCC Website

eJIFCC Vol 32 n°4 is now available!

This issue begins with an interesting "Overview on the scientometric advancement of the eJIFCC" by Prof. János Kappelmayer, eJIFCC Editor in Chief, Dr. Harjit Pal Bhattoa, Assistant Editor, and Prof. Gábor L. Kovács, past Editor in Chief. The history of the electronic Journal of the International Federation of Clinical Chemistry and Laboratory Medicine (eJIFCC) dates back over 20 years. Browsing the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) website one can witness that the earliest issues date back to the previous millennium. While assessing the volume of the published issues, it can be promptly realized that the annual published page count has increased considerably in recent years. Is the increment in the number of publications and printed pages accompanied with an enhanced recognition of the eJIFCC? In this short report, the authors delineate the path that the eJIFCC has followed in the past years and seek to characterize the journal by various objective scientometric parameters and the answer to the question is more than positive! The issue is completed with 7 more articles and a call for thematic manuscripts.

Read more

IFCC President's message – December 2021

Prof. Khosrow Adeli
PhD, FCACB, DABCC, FAACC

by Khosrow Adeli
IFCC President

As you may have heard, IFCC, EFLM, and the organizing committee have made the difficult decision to postpone the **EuroMedLab Congress**. While we were excited to meet together in Munich, our number one priority is the health and safety of congress participants. Fortunately, new dates have been scheduled thanks to the hard work of our Professional Conference Organizer (MZ Congressi) and the conference organizing committee (COC). We are looking forward to welcoming our invited speakers, registered participants, and exhibitors to join us in Munich from **April 10-14, 2022**. I hope to see you all there at this leading educational event, which will be well worth the wait!

In other news, I am excited to announce our latest initiative: **IFCC Global Lab Medicine Week (GLMW)**. This program aims to create awareness of the critical contribution of laboratory medicine to healthcare, and to celebrate the important role of laboratory professionals around the world. Each year, a specific theme will be chosen to highlight an aspect of laboratory medicine that demonstrates our value.

As those of us in the laboratory medicine community know, laboratory medicine is part of the multidisciplinary team at the centre of healthcare, providing objective data to guide patient care and public health decisions. Unfortunately, a lack of awareness exists among various stakeholders, including our healthcare colleagues, the public, governmental bodies, and other organizations, regarding the value of laboratory medicine in healthcare delivery. Increasing the visibility of laboratory medicine will help to increase funding to support innovation and sustainability, thereby improving both patient care and public health as well as increasing resources in the field of in vitro diagnostics. IFCC GLMW will be officially launched at the EuroMedLab in **April 2022** and subsequently celebrated every April and throughout the year at all major IFCC conferences and events. We are currently recruiting a media/marketing company to develop digital assets for this program. If you are interested in becoming involved in this important and timely effort, a call for nominations will be sent out soon for 1) GLMW Corporate Member Representatives and 2) GLMW Champions, who will have the opportunity to share digital assets and promote GLMW within their company and region, respectively.

The IFCC has had an incredibly productive year in 2021 despite the ongoing pandemic. With help from many of you, we successfully established several task forces, held the IFCC Global Conference on COVID-19, continued the IFCC Live Webinar Series, organized the first Annual Town Halls for several regions around the world, and so much more. Looking forward to 2022, the IFCC is eager to continue its mission of "advancing excellence in laboratory medicine for better healthcare worldwide". I hope we can look forward to another productive year in 2022 when we will finally be able to bring the IFCC community together at events such as the EuroMedLab in Munich, WorldLab in Seoul, and the General Conference in Brussels. In the meantime, I wish you all a wonderful holiday season! Should you have any feedback, questions, or concerns, please feel free to email me at president@ifcc.org.

Till next time ☺
Khosrow

Postponement of the IFCC EuroMedLab Munich Congress

APRIL 10-14, 2022

Dear Ladies and Sirs,
Dear Colleagues,

We are delighted to inform you that the EuroMedLab Congress in Munich, Germany has been rescheduled to April 10-14, 2022.

Following the recent postponement, this new date has been chosen based on the recommendation by the organizing committee and members of the IFCC and EFLM Executive Boards also taking into account both congress venue and hotel space availability. Suitable space was not available during the fall of 2022.

We are looking forward to welcoming all our invited speakers, registered delegates, and exhibitors to this rescheduled conference in Munich, the beautiful capital of Bavaria.

We also take the opportunity to apologize for any inconvenience caused by the rescheduling of the conference.

In these times, it is a challenge to balance the desire to meet in person with our safety concerns for you as the participants. With increasing levels of immunity and widespread immunizations, we are confident to be able to meet all of you at this important international event to celebrate the end of the COVID-19 epidemic together!

The Organising Secretariat MZ Congressi will be contacting all parties involved (Speakers, Sponsors & Exhibitors, Delegates, Poster Presenters, and others) with further information.

With our best regards,

Khosrow Adeli
IFCC President

Ana-Maria Simundic
EFLM President

Michael Neumaier, Chair COC
Karl Lackner, Congress President

IFCC Abbott Visiting Lecture Programme: meeting of the Balkan Federation, hosted by the Bulgarian Society of Clinical Laboratory

by Dr. Sverre Sandberg
Director of the Norwegian Quality Improvement of Laboratory Examinations (NOKLUS)
Haraldsplass Deaconess Hospital Bergen, Norway

Dear Sedef Yenice,

First of all – thank you for making it possible to visit and lecture at the meeting of the Balkan Federation in Sofia, Bulgaria, from 8 to 11 September 2021.

This was my first travel abroad after the start of the pandemic. Everything went smoothly. The organizing society provided everything needed and it was indeed a great pleasure to be in Bulgaria.

Most of the presentations and audience in the conference were “online”, with Khosrow and me representing the IFCC. In these times, I think this was important although there were not so many participants present face to face. I gave two lectures, one on biological variation and one on porphyria. Not many questions after the lectures, but I was approached afterwards by some people. I met with the leader of the Porphyria centre in Bulgaria and had good discussions with her. During the networking dinner and working dinner I met with some new and old friends to discuss different aspects of laboratory medicine. Such discussions are indeed important, they generate new ideas and new cooperation that is not possible with “online” meetings. I met with several people from other Balkan countries although it seemed that not all Balkan countries were represented physically on the conference. I was also well taken care of socially and was able to see some ancient parts of Sofia. Dr Dobrin was an excellent host and indeed it was a great challenge for him to organize such a conference.

Picture from the working dinner. L-R: Dr. Dobrin Svinarov, President, Bulgarian Society of Clinical Laboratory; Dr. Dunja Rogic, Clinical Institute of Laboratory Diagnostics, Clinical Hospital Center Zagreb; Prof. Khosrow Adeli, IFCC President; Mrs. Eiren Adeli; Dr. Sverre Sandberg, IFCC VLP speaker

The C-MHBM ahead: Catching the wave of POCT with IVD contribution to technological innovation

by ***Bernard Gouget***
Chair, IFCC C-MHBLM
Damien Gruson
IFCC ETD EC Liaison
Sergio Bernardini
Chair, ETD EC

The "POCT Making the Point" Congress at Tor Vergata University, Roma (IT) was an opportunity for the participants and the C-MHBLM members to meet and discuss widely together with IVD representatives on the evolution of the Point of care testing market, new challenges and more. Innovation in digital tools including eHealth, mHealth apps, wearable sensors, tele-medicine and POCT are already buzzwords leading to futuristic smart devices. They are bringing a new approach to the management of health conditions and enabling affordable personalized health care. Spectacular technological innovations in POCT have been made since the beginning of the new millennium. Numerous factors are stimulating POCT demand such as rising incidence of chronic diseases, increased demand of home-based POC devices, high prevalence of infectious diseases in developing countries, and technological advancements in molecular testing. In particular, the Covid-19 pandemic has accelerated the use of POCT devices.

Many POCT have been developed for a wide variety of devices and applications in the medical diagnostics market. POCT is being increasingly used to identify disease, determine prognosis, and monitor treatment. The continuous technological innovations in POCT devices as the miniaturized biosensors, the improvements in micro-fluidics, lab-on-a-chip technologies, artificial intelligence, device automation, and signal readout are providing the desired stimulus for continuous improvements of bioanalytical performance in terms of accuracy, precision, connectivity. and data management. The growing importance and benefits of these devices, when properly applied, are expected to expand the access to medical services, improving health outcomes, and facilitating the sustainability of disease-control programs in low- and middle-income countries. As POCT and digital tools begin to have a fundamental impact on patient care and influence clinical decision, it is important to assess the innovation and evidence of their contribution, as well as the barriers and facilitators of adopting them because they have a leading role in the transformation of how healthcare is delivered.

Several members from the C-MHBLM were present at the "Roma" POCT Congress: Damien Gruson, IFCC-ETD liaison, Bernard Gouget, chair IFCC-C-MHBLM, James Nichols, IFCC-C MHBLM member, Irena Korita, IFCC C-MHBLM corresponding member, Albanian Society of Clinical Biochemistry and Laboratory Medicine (ASoLaM), Sanja Stankovic; IFCC C-MHBLM corresponding member, Serbian Society for Clinical Laboratory Medicine and Science (SCLM); Evgenija Homsak, IFCC C-MHBLM corresponding member, Slovenian Association from Clinical Chemistry and Laboratory Medicine (SZKKLM). Several were invited to speak on POCT, wearable technologies applications and security concerns, and to coordinate the second-round table with five IVD companies to discuss on POCT trends in four areas: innovation, evidence, regulation, and adoption. The challenge was also how to assess and understand how they are becoming an entirely new lab medicine modality alongside traditional laboratory practice:

- Randox Laboratories (https://www.randox.com) is developing innovative diagnostic solutions for hospitals, clinical, research and molecular labs, food testing, forensic toxicology, veterinary labs and life sciences. They have complete QC solutions and hold the largest EQA scheme. Andrea

Article continued on next page

Filippi, sales consultant in Italy, presented the portfolio of their products, with a special focus on the Vivalytic menu, which enables sample to answer, cartridge based molecular diagnostic testing. Vivalytic´s intuitive engineering ensures the analyzer is user friendly. Its platform is capable of both Hi-Plex and Lo-Plex testing. Nucleic acid extraction, PCR amplification followed by a set of detection methods are combined in a truly revolutionary, fully automated platform. Also, it can be wirelessly connected allowing the user to control multiple tests at one time, being all reported to a master Vivalytic platform. In collaboration with Bosch, they release not only a rapid testing solution for the detection of SARS-CoV-2 (COVID-19) but an accelerated mass testing solution to effectively and efficiently monitor and detect viral infection from the offset with the aim of minimizing the rise in infections globally. The new SARS-CoV-2 pooling test will allow users to test up to 160 samples a day with a sensitivity of 98% and a specificity of 100%.

- Radiometer is a Danish multinational company which develops, manufactures and markets solutions for blood sampling, blood gas analysis, transcutaneous monitoring, immunoassay testing and the related IT management systems. Radiometer was acquired by Danaher in 2004. Radiometer was represented by Anne Skurup, Global Medical Affairs, from Denmark. Anne gave an introduction to Radiometer, the Radiometer history of innovation, with a strong focus on meeting challenges for healthcare professionals in the critical care arena starting at the polio epidemic in the 1950'ies. Anne presented an example of recent innovations, namely the multiplex and complex challenges with adding creatinine to an already existing critical care sensor platform with the sensors available on a modern blood gas analyzer. Radiometer's perspective on the future was also addressed, stressing the need for collaboration between health care professionals and technological development. For more information, please visit: www.radiometer.com.
- Dr. rer. nat. Jürgen Becker, Dipl.-Biologist, Scientific Marketing Manager Europe, Quidel (https://www.quidel.com/) gave us the insights into rapid diagnostic solutions for respiratory infections. His presentation provided an overview of Quidel's product portfolio for the detection of viral and bacterial pathogens and human antibodies. The product portfolio includes real-time PCR reagents for use in experienced central laboratories (Lyra Blue), RT-PCR reagents for use on lysed blood samples without prior extraction for use in less experienced or decentralized laboratories (Lyra direct, Solana) as well as diagnostic solutions for use at the Point of Care (Sofia-2 FIA, Savanna). The technological features of the Sofia 2 fluorescence immuno-analyzer were described in detail. The test cassettes ensure a simple and point-of-care capable workflow (All Reagents on Board) with the possibility to connect the system to information systems or cloud-based solutions for electronic data recording and epidemiological statistics. The newly developed Savanna system was also presented in its technological details. Savanna is a new developed platform of Quidel designed for the molecular detection of pathogens that realizes a true sample-in-result-out concept. Detection is done without the need for any prior manual preparation of specimens. The system can therefore contribute in the future to further establish molecular diagnostics at the point of care in a reliable way via avoiding errors in preanalytical preparation of specimens which is referred as a major critical point for POC-testing.
- Giovanni Mantero, PhD, Technical Director Immunospark s.r.l. (https://www.immunospark.com/) delivered a lecture on "POCT in molecular diagnostics: new technologies and new opportunities". The Covid-19 pandemic has produced a significant impact on the diffusion and perception of POCT, either in the field of immunological rapid-tests based on lateral flow or in molecular diagnostics (Mdx). These tests quickly became a fundamental component of the diagnostic effort to contain and monitor the global issue represented by the pandemic. Also, Covid-19 pandemic boosted the implementation of technology dedicated to POCT, like microfluidic-third-generation antigen/serological tests and new MDx platforms. In the Mdx

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field, especially, many new rapid Mdx monotests have been introduced and adopted, either in clinical setting and in the field. The evidence of the important role of these assays has raised a novel interest in this field, opening new important issues, like standardization and their possible positioning in the general diagnostics workflow. Interestingly, POCT platforms have found a new space and a new consideration not only in emergency field or true point-of-care settings, but also in the conventional, routine clinical lab. It is apparent now that monotest devices, alone or combined in scalable modules, can offer a convenient and efficient way to manage low-throughput routine, either in immunodiagnostics or Mdx, based on low numbers-broad typology of analytes. Flexibility, random access, short time, simplicity, and module scalability offer new solutions for many less common routine apart for Covid itself. The Company offers a platform that looks suited for this multifaceted scenario, spanning from emergency to clinical lab setting. A set of instruments based on a rapid isothermal amplification technology (CPA) offers the possibility of having results in 50 minutes, including extraction. The instrument integrates extraction, amplification and fluorescent real-time detection of RNA or DNA targets. The available kits include Cov-2 and dozens of other analytes. The test is performed through a mono-test disposable cartridge that integrates the complete analytical flow, from extraction to amplification. Each module is completely independent, and can be operated at any time independently from the other positions, offering a true random access. The instrument is provided in several scales: 2, 4, 8 or 16 independent positions: up to 16 different samples and different tests can be done independently, and higher throughput can be obtained putting two or more instruments in the line. The procedure is very simple, requiring only loading the sample onto the cartridge and starting the run through a bar-code recognized by the instrument. The sensitivity overlaps the standard sensitivity of conventional Real-Time PCR, with a significant gain in workflow, turn-around time, and flexibility. This platform is nowadays adopted in very diverse clinical and field settings and meets the requirements for the "new age" of POCT as well as for its dissemination as an integral part of IVD routine.

- Hongwei Zhang, senior Director of Research and Development Abbott (https://www.abbott.com/), presented the vision of Abbott on POCT and innovating diagnostic testing. Traumatic brain injuries may be emergencies. In the case of more-severe TBIs, consequences can worsen rapidly without treatment. Doctors or first responders need to assess the situation quickly. She underlined that Abbott since the pandemic delivered COVID 19 tests globally. She illustrated the traumatic brain injuries (TBI) assessment with the i-STAT TBI Plasma test which measures the level of biomarkers associated with brain injury in the blood stream to assist in determining the need for a CT scan of the head. The i-STAT TBI plasma cartridge is a panel of IVD immunoassays for the quantitative measurements of glial fibrillary acidic protein (GFAP) and ubiquitin carboxyl-terminal hydrolase L1 (UCH-L1) in plasma and a semiquantitative interpretation of test results derived from these measurements using the i-STAT Alinity instrument. When used appropriately, POCT can improve patient outcomes by providing faster results and earlier therapeutic interventions. However, when over-utilized or incorrectly performed, POCT presents a patient risk and potential for increased cost of healthcare. It is important that the practice of POCT is evidence-based. Evidence-based medicine (EBM) is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. It is the integration of best research evidence with clinical expertise and patient values. EBM offers fact-based support for medical decision-making, reducing subjectivity and practice variability.

IFCC - CMBLM member, James H. Nichols, PhD, Professor of Pathology, Microbiology and Immunology and Medical Director of Clinical Chemistry and Point of Care Testing delivered an amazing lecture on: "Utilizing POCT to Optimize Care".

His presentation highlighted the various ways that POCT are being utilized in healthcare settings and

Article continued on next page

how patients are being empowered to take charge of their own health through direct-access testing (where patients can walk into a clinic and order their own tests) and through marketing of laboratory testing directly to patients through the internet. While there are benefits conducting testing in the privacy of their own home, particularly for tracking chronic conditions, like diabetes, hyperlipidemia and kidney disease, patients are at risk due to poor quality of results through misconducting of the test and misinterpretation of the results. Self-testing is at the patient's expense as insurance will not reimburse for tests not ordered by a professional clinician. More importantly, the self-test results do not make it into the permanent medical record. Newer devices, like smart watches, health monitors, continuous testing monitors (like continuous glucose monitors) are rising in popularity. But there is not common interface to transfer the patient's health data to their record for clinicians to track and monitor. Social media companies like Google and vendors like Apple and Amazon are entering the health arena. These companies are collecting vast amounts of personal health data on populations that allow artificial intelligence algorithms to mine progression of diseases in various groups. Yet, the health data also pose security risks from computer hackers. The next generation of POCT devices will be better integrated with digital health, perform smart algorithms, and enhance personalized medicine linking current test results to past trends and population statistics.

The IFCC Committee on Mobile Health and Bioengineering in Laboratory Medicine discussed and focused on e-Health and patient-centered health experiences as a new area for future attention to laboratory professionals. The current wave of emerging digital technologies offers great opportunities to transform Lab Medicine operating patterns. Plenty of challenges and opportunities for the IFCC committee!

L to R: Michel Vaubourdolle, Irena Korita, Sergio Bernardini, Khosrow Adeli, Sania Stankovic, James Nichols, Bernard Gouget, Evgenija Homsak, IsBell Scott, Damien Gruson

Credit photo: Paola Bellati, Exclusive consultant product manager SNIBE

Invitation to host the IFCC WorldLab 2024

26th International Congress of Clinical Chemistry and Laboratory Medicine (ICCCLM)

Deadline to submit applications has been extended till December 15th, 2021.

The IFCC WorldLab is one of the most significant international scientific congresses in the field of Clinical Chemistry and Laboratory Medicine. The WorldLab also hosts the IFCC Council and serves as the focal point for the activities of IFCC and its working relationships with its Regional Federations and Full Member Societies.

It is normal practice for the WorldLab to be hosted by one or more of the Full Members and we invite you to consider whether your society may wish to host the 26th IFCC WorldLab in 2024, in collaboration with your Regional Federation. A copy of the Updated Guidelines for organising a WorldLab as well as the Application Form are available here.

Guidelines outline the terms, conditions and procedures that will apply and the nature of the working relationship between IFCC, Regional Federation and the host society. Based on the new guidelines, the IFCC WorldLab Congresses will be held every TWO (2) years (2024, 2026, 2028, 2030). The IFCC conference in Europe (EuroMedLab) will be held jointly with EFLM in alternate years (2023, 2025, 2027, 2029).

Any Full Member Society outside Europe may apply to host the 26th WorldLab in collaboration with their Regional Federation. Completed application forms should be submitted electronically by e-mail to the IFCC Office (Silvia Cardinale at ifcc@ifcc.org) to arrive not later than December 15th, 2021.

The Journal of the International Federation of Clinical Chemistry and Laboratory Medicine

eJIFCC

Call for manuscript submissions for a thematic eJIFCC issue on "Laboratory aspects of COVID-19 disease"

Guest editor for the thematic issue: Béla Nagy Jr.

Since the outbreak of the Coronavirus disease 2019 (COVID-19) pandemic in December 2019, the importance of clinical laboratory tests has emerged to manage the hospitalization of patients with different severity of COVID-19 related disorders, to distinguish severe and non-severe clinical conditions and to predict the outcome of the disease. For these purposes, a vast number of clinical studies has recently been conducted to validate the potential role of various laboratory tests. In parallel, the effect of COVID-19 vaccines has also been evaluated. However, due to the rapid accumulation of this enormous amount of patient data, we need to raise the questions where we are now and where we should be heading?

We would like to offer some new insights into the usefulness of routinely available and novel laboratory biomarkers in the still demanding COVID-19 as well as for monitoring of vaccination with an eJIFCC issue dedicated to this disease. We invite you to submit a paper on ***"Laboratory aspects of COVID-19 disease"*** to be published in this thematic issue. Submitted papers will be peer-reviewed according to the regular procedure of the eJIFCC Journal.

Important deadlines

- Deadline for submission of the tentative title (to the Guest Editor): **April 1, 2022**
- Deadline for submission of the manuscript: **May 15, 2022**

Potential types of articles

- Original Article
- Critical Reviews
- Case studies

Manuscripts need to be submitted by e-mail

- to the Editor-in-Chief: ejifcc@ifcc.org
- with a copy to the Guest Editor: nagy.bela@med.unideb.hu

Guest editor

Béla Nagy Jr., MD, PhD
Department of Laboratory Medicine,
Faculty of Medicine, University of Debrecen,
Debrecen, Hungary

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- EDUCATIONAL WEBINAR -

Harmonization - an important tool to improve patient safety in laboratory medicine

PRESENTED BY PROF. MARIO PLEBANI

Friday, December 10th, 2021

12:00 GMT | 13:00 CET | 07:00 ET

Webinar Description

Despite monumental advances in quality improvement over the past few decades, clinical laboratories are still under increasing pressure to achieve efficiency, timeliness, safety, effectiveness and patient-centered services. Laboratory tests are required for fulfilling the healthcare needs of individual patients and populations; they are critical to predict susceptibility to and prevent disease, to achieve early diagnosis and effective monitoring, and to determine prognosis and personalize treatment to get the best outcomes. However, many laboratory test results are still highly variable, poorly standardized and harmonized. But analytical variability is the tip of the iceberg, as clinicians and patients require that laboratory tests performed by different laboratories at different times on the same patient can be compared and consistently evaluated. This, in turn, requires not only the comparability of analytical results but also of the ultimate laboratory information; therefore, all other aspects of the total testing process (TTP), such as terminology, sample and specimen quality, units, reference ranges and decision limits, report formats and criteria for interpretation should be harmonized. If the final goal is that patient treatment based on laboratory information is accurate, timely and safe, a global picture of the harmonization process is required which takes into consideration both analytical and extra-analytical steps of the testing process. Aim of this lecture is to provide the current state-of-the art of harmonization in laboratory medicine and further steps to improve better comparability of the laboratory information and better patient safety.

Learning Objectives

1. Concepts of Harmonisation in the Clinical Laboratory
2. Impact of Harmonisation on laboratory quality
3. Contributing factors to Harmonisation in the clinical laboratory

PRESENTED BY

Professor Mario Plebani
Professor of Clinical Biochemistry and Clinical Molecular Biology at the School of Medicine, University of Padova

Chief of the Department of Laboratory Medicine at the University-Hospital of Padova, Italy

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In memoriam: Lina Khorovskaya

Lina A. Khorovskaya

It is with great sadness that I need to inform the IFCC community that Lina A. Khorovskaya passed away on October 14, 2021, at the age of 58. Lina died from Covid. Her husband, Oleg Khorovskaya, 58, the head of a leading private dental hospital, also died after contracting coronavirus in late September 2021. A few days later, their daughter Darya Khorovskaya, 35, a highly respected Russian orthodontist, fell to her death from a hospital Covid ward window. She had been admitted to hospital two days before with Covid-19 complications.

Lina Khorovskaya, M.D., Ph.D, was a Professor at North-Western State Medical University named after I.I. Mechnikov, Saint-Petersburg, Russian Federation, in the Department of Clinical Laboratory Diagnostics.

Lina Khorovskaya was a long-standing member of IFCC, EFLM, and AACC.

Lina was an internationally recognized expert in clinical diagnostic and published on a wide range of topics, including method verification, measurement of assay uncertainty, procedures of POCT instruments for glucose concentration measurements, comparison of measurement performance, and quality assessment using patient opinion about laboratory service.

Lina Khorovskaya served for several years in the IFCC EMD *Committee of Analytical Quality (C-AQ)* and, later, also in the special EMD project *Developing Quality Competence in Medical Laboratories (DQCML).* In both projects she took an active role in developing quality management related documents for IQC and EQA and in respective hands-on trainings and workshops for less developed countries.

The IFCC mourns Lina Khorovskaya's tragic and untimely loss and this inconceivably family tragedy. We will forever remember Lina's openness, friendliness and fine personality – she was a real philanthropist and the perfect gentlewoman. We will miss her.

Prof. Dr. Egon Amann
Co-Chair, IFCC TF-GLQ

IFCC Call for Nominations

The IFCC invites nominations for the following positions:

Education and Management Division

- ***Committee on Kidney Disease (C-KD)***
  - One member position
  - Time in office 2022-2024
  - Deadline to receive nominations and supporting documents: **January 10, 2022**
- ***Committee on Clinical Applications of Cardiac Bio-Markers (C-CB)***
  - One member position
  - Time in office 2022-2024
  - Deadline to send nominations and supporting documents: **January 30, 2022**

****

Applications for these positions should be submitted by IFCC members (National Societies or Corporate members). If you are interested, please refer to your National Representative or Corporate Representative for information on procedures for nominations. Find your representative here.

For further information on IFCC open Calls for Nominations, please visit the IFCC Call for Nominations page.

News from the IFCC Website

IFCC Information Guide on COVID-19 - 15 November 2021 Updates

Click on the link and access the IFCC online resource about COVID-19 providing critical information on laboratory guidelines, biosafety, and other important resources to assist member societies worldwide and their clinical laboratories as they face the challenges posed by the COVID-19 outbreak.

The Sections on Molecular Testing - Antigen Testing - Serology Testing, as well as the Vaccines Section have been updated with new publications.

The page is updated continuously with the most recent information on a monthly basis.

CONTRIBUTE TO THE IFCC eNEWS

Never two without three available for all

by Bernard Gouget
Chair, IFCC Committee on Mobile Health and Bioengineering in Laboratory Medicine (C-MHBLM)
Co-Chair, IFCC-TF on History
SFBC-International Committee
President, Healthcare Division, Executive Committee (Cofrac)
President, National Committee for the selection of the French Reference Laboratories, Ministry of Health

Bernard Gouget

The fifth wave of the epidemic is confirmed in Europe. COVID 19 is a word that we would have liked to erase from our vocabulary and which resonates painfully in our ears today. COVID-19 is not going away. There have been more than 258 million confirmed cases of COVID-19 worldwide by November 23rd, according to Johns Hopkins University. The threat of a winter wave of coronavirus infections is real. In the wake of the sharp rises in infection figures in Bavaria (DE), the hospital traffic light is on red level, which is why stricter Corona rules are currently in force and further tightened since November 19th.

Provisions include contact restrictions for the unvaccinated and curfew in restaurants, discos, clubs and bars. Cultural, recreational and sporting events may only be held with limited attendance. So, it was decided to postpone EuroMedLab Munich in 2022.

A new variant of the coronavirus with some alarming characteristics recently appeared. It first cropped up in Botswana and is believed to have contributed to a sharp rise in infections in South Africa. On November 26th, the World Health Organization officially named it a “variant of concern,” meaning there’s evidence that it’s more transmissible or more virulent than previous versions of the virus. Scientists are particularly worried about this one, known as Omicron, because it has an unusual number of mutations, more than have been found in other highly transmissible variants such as delta. Many appear on the spike protein, the part of the virus that binds to human cells and enables it to gain entry. The fear is that these changes could help Omicron more easily get around the body’s immune defenses and render the vaccines less effective. We still know little about the new variant outside its mutation profile.

The disease is tragically taking more and more lives. At the beginning of November, the European zone grouped more than 60% of new SARS-CoV 2 infections diagnosed worldwide, and the old continent was the scene of 55% of deaths recorded according to WHO. Europe, which has just passed the 1.5 million death mark, is the beating heart of the pandemic. Winter is shaping up to be a difficult time, but we know how to curb the virus with vaccination and individual protective measures. The cold months pose high risks for the adults who remain unvaccinated. People mingle indoors more often, making it easier for the virus to circulate. The risk of aerosol

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contamination is increased. In addition, viral circulation in the community in schools is underestimated, children are mostly asymptomatic or have symptoms that are more difficult to recognize for those children who do not yet have access to vaccination. This still constitutes a large population pool for the circulation of the virus.

Epidemic dynamics vary from country to country. With poor vaccination rates, the countries of Eastern Europe are extremely affected, while those of Southern Europe are still relatively spared. The situation is difficult in Romania, Bulgaria where hospitals are overwhelmed. In northern Europe, the epidemic is on the rise again. UK stands out with high but stable infection rate while barrier measures are lifted, but part of the population continues to telework. The latest wave of Covid-19 is harrowing German-speaking countries. Germany, Austria and Switzerland have the highest shares of unvaccinated people in Western Europe, bar tiny Liechtenstein and Luxembourg. Austria imposes containment on the unvaccinated and is also moving forward with a nationwide lockdown that officials hope will curb soaring case numbers. Austria also took the extraordinary step of mandating vaccines for everyone eligible, becoming the continent's first country to do so.

As cold-and-flu season ostensibly starts in the Northern Hemisphere, researchers agree that influenza will eventually rebound, possibly fiercely, as travel restrictions and societal interventions designed to curb the coronavirus, such as mask wearing, wane. Maximizing the uptake of influenza vaccination in eligible populations, including among health and social care staff, should continue at pace. The pandemic is continuing to have unexpected effects on several respiratory diseases, some have been quashed, others have ploughed through and still more are rebounding off-season. These fluctuations are complicating medical responses to the pandemic, but also providing scientists with an opportunity to study how these viruses spread. The virus that causes COVID 19 is on track to become endemic, like the ones that cause the common cold. We will probably encounter it at some point, if we have not already. Reinforcement of barrier measures, screening, vaccination booster, sanitary pass, mask wearing and isolation of the sick remain for the moment the best weapons.

One of the benefits of the vaccines is their ability to prevent getting infected at all. If we are not carrying the virus, we can't spread it. According to a study in The Lancet, the effectiveness of the messenger RNA vaccine against infection declines over time, from 88% to 47% after six months. However, it remains 90% effective against the risk of hospitalizations for the most fragile. These vaccines, which are still in limited supply "will save the most lives if they are provided to people who are at a high risk of having a severe form and have not yet been vaccinated", experts from WHO and FDA recently argued in The Lancet. Strong coverage achieves the primary goal of immunization: saving lives. The upcoming arrival of a new generation of vaccines and specific treatments brings hope. It is essential to facilitate worldwide access to tests, support the isolation of patients and limit large gatherings. If there is no question about accepting the booster shot, one can only appeal for fairness. Many countries have acquired more vaccines than necessary, they must share.

With the extension of an extended third dose, and no longer just to the elderly and frail, there is a much stronger immune response. The question is whether this will last over time. If this virus becomes endemic, it is not impossible to lead to the regular construction, like the flu, of a vaccine every year. The COVID-19 pandemic is continuing to have unusual and unexpected effects on several respiratory diseases, some have been quashed, others have ploughed through and still more are rebounding off-season. There are thousands of cases that are COVID that people thought were just a cold and they are spreading it to other people. Everyone with "cold or flu-like symptoms" is encouraged to take a lateral flow test followed by a PCR test to confirm it's not COVID-19. Seasonal flu typically kills 290,000–650,000 people a year worldwide. Pandemic response measures also seem to have suppressed some bacterial infections, including those that cause pneumonia and meningitis and are associated to sepsis. But some viruses have behaved differently. Some typical winter viruses have bounced back out of season. Rhinoviruses, for example, a major cause of the common cold, continued to

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spread throughout the pandemic, possibly because these viruses aren't as susceptible as many others to measures such as surface cleaning and hand washing, and because they faced little competition from other respiratory viruses.

Last April, infections with respiratory syncytial virus (RSV) were climbed at the end of August, in the US and France, currently during an epidemic of bronchiolitis. Bronchiolitis is mainly dangerous for children under 3 month's old, and very premature babies or infants with chronic disease. RSV is the most common cause of acute lower respiratory tract infections in the pediatric population, with almost 33.8 million cases worldwide in children under 5 years of age, 3.4 million (10%) of hospitalizations, and 66,000–199,000 deaths. RSV epidemics are driven by a complex interaction between the climate, the virus, and the host. In countries with a higher COVID-19 burden, the pressures resulting from RSV epidemics might be even greater. Planning for preventive measures is needed now. Infection control measures, such as keeping infants and children with respiratory symptoms at home, will be required, and hospitals should prepare for increased numbers of admissions than historical data suggest.

Immunization of children like in Israel (from 5-12yr) and the US is still topical, real-life data will quickly arrive from the US. If this vaccination is effective, it is an asset in slowing the spread in the general population. A growing number of countries are trying to get ahead of rising caseloads on who can get vaccine booster shots and expanding eligibility. To drive up vaccinations among young people, some public health experts are turning to ad campaigns. Even so, there are still opponents of vaccination. The problem is whether they are opponents, whether they are procrastinating or whether they do not have access to vaccines. We must seek that part of the population which remains unimmunized as they have an increased risk of hospitalizations and they circulate the virus. Even if you only hit a fraction, it can have a positive impact.

Nearly a year after coronavirus vaccination campaigns began in earnest around the globe, many Western countries with ample vaccine supply have started offering booster shots. It remains to be seen where governments will raise the bar. Booster shots are already approved for elderly and those who work in high-risk settings. Pfizer-BioNTech is asking to authorize a booster dose of its coronavirus vaccine for all adults. The deployment of booster shots, mostly in wealthy countries, comes as many people in lower-income countries are still waiting for their first doses. Tedros Adhanom Ghebreyesus, WHO, recently called the attention on "six times more boosters are being administered globally than first doses in low-income countries", calling the lopsided rollouts as a scandal that must stop now. According to "Our World in Data", only about 4 percent of people in low-income countries have received at least one shot. Global health authorities have repeatedly called that we must focus also on getting the rest of the world vaccinated. African countries have been especially reliant on Covax that has struggled to meet its target for vaccine distribution amid vaccine hoarding by wealthy countries, export bans and other problems. Large unvaccinated populations create opportunities for the virus to mutate more rapidly.

The exponential contamination curves reflect a drop in reported COVID-19 protective behaviors as wearing face coverings, avoiding contact and social distancing. The progression of hugs and handshakes seems as exponential as that of the virus in recent days. We can understand the weariness of the populations, the rules can seem unpleasant, but they are essential in order to avoid others that are much more restrictive. On-going clear communications are required to reinforce the benefits of adherence. The COVID-19 global pandemic continues to prove that crises are often more encompassing than we desire. A successful response cannot be achieved without a coordinated, unselfish team ready to lead the organizations through turmoil.

We have learned a lot about viruses and vaccines. The pandemic has forced us to be as a society and as individuals. It is yet premature to comment on the outcome of the pandemic, on globalization and power relations. This great scale sanitary crisis is characterized by a great difference in the states' reactions to this issue. The interdependence favored by globalization is now first perceived as a form of dependence

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contrary to sovereign interests. The diversity of national handling of the crisis and the great differences in terms of anticipation and implementation of preventive measures, certainly illustrate the need of more international and regional coordination in tackling a global challenge. It should eventually lead to a redefinition of the much-needed measures of anticipation and prevention policies. Luckily, all the knowledge accumulated over the past 19 months won't just serve us in the ongoing fight against COVID-19. It may very well prove its usefulness in combating other illnesses that plague mankind.

News from the IFCC Website

On-demand content available for the 22 November 2021 IFCC Live Webinar

**"Proficiency Testing/ External Quality Assessment:
Program designs and practical approaches for addressing unexpected results**

The IFCC webinar on "Proficiency Testing/ External Quality Assessment: Program designs and practical approaches for addressing unexpected results" was held on 22 November, 2021.

Read more

A warm 'thank you' to laboratory leaders from the UNIVANTS award program

As the UNIVANTS of Healthcare Excellence award program closes the application cycle for the 2021 calendar year, a key takeaway for all healthcare professionals is that Laboratory Medicine continues to be an essential and innovative discipline for transformational healthcare. Not unlike the previous two years, applications were received from across the globe, with over 165 countries actively engaging on the program website and sharing best practices of measurably better healthcare.

The UNIVANTS of Healthcare Excellence award program was initiated in 2018 with a call to action for healthcare teams to "UNIFY for Something Greater" to inspire and share measurable examples where insights from laboratory medicine have enabled valued benefits to patients, payors, clinicians and entire health systems. Hundreds of applications have been initiated since program inception with over 75 applications initiated in 2021. All submitted applications are now being assessed for eligibility prior to advancing to judge review where each eligible application gets independently scored by experts across seven of the eight prestigious partner organizations. The judge organizations include the International Federation of Clinical Chemistry (IFCC), AACC, EHMA (European Health Management Association), Modern Healthcare, Health Information and Management Systems Society (HIMSS), National Association of Healthcare Quality (NAHQ) and the Institute of Health Economics (IHE). Note that the eighth partner and founding creator of the UNIVANTS of Healthcare Excellence award program, Abbott, sponsors multiple aspects of the award program but has no role in the scoring of the submitting applications.

More details about the 2021 winners will be announced in summer 2022. In the interim, the UNIVANTS of Healthcare Excellence program invites laboratory leaders to continue their excellent and meaningful contributions to healthcare. The time is now for strategic brainstorming and activation of proposals that solve care gaps across existing disease burdens and/or drive population wellness for measurable better healthcare. There is no better time than now to unify across disciplines and innovate using valued insights from laboratory medicine. Often healthcare teams are making a difference, but not quantifying their success in a measurable way. The UNIVANTS of Healthcare Excellence award program requires outcomes in the form of key performance indicators to measure that success with the understanding that those success factors will help other care teams across the globe be equally as successful.

Examples of formerly-recognized best practices can be found on the UNIVANTS of Healthcare Excellence program website at www.UnivantsHCE.com. We invite you to join the movement, share in the best practices, submit photos of your team for the gallery and ideally become candidates for the 2022 awards with applications being requested by August of 2022.

"We are so proud of all healthcare leaders who submitted applications this year to the 2021 UNIVANTS of Healthcare Excellence award program. Achieving measurably better healthcare performance and measuring the cascade of value across the healthcare continuum is difficult even without the extra stress of the COVID-19 pandemic. Thus, each of the teams this year has not only gone above and beyond to meet the rising demands of healthcare today, but have become leaders of the future. Thank you for your commitment to healthcare excellence, for elevating the value of laboratory medicine and for being transformational leaders," comments Dr. Melissa Ryan, Scientific Leader at Abbott.

Syria between a rock and a hard place

by Ghassan Shannan
Syrian Clinical Lab Association
Bernard Gouget
IFCC TF-History

Dr. Ghassan Shannan

Ahead of the Journées de l'Innovation en Biologie (JIB 2021-Biology Innovation Days) to be held in Paris on December 1-2, François Blanchecotte, JIB President and Bernard Gouget, IFCC TF-History organized an e-round table with fifteen European and Mediterranean countries. They shared information on the evolution of the pandemic in each country and discussed the critical role of lab medicine professionals in tackling the impact of COVID-19 to emerge stronger from the crisis. Syria was the fastest to send us its summary!

Dr. Ghassan Shannan, Syrian Clinical Laboratory Society (SCLA) explained that ten years of the Syrian war had a devastating effect on Syrian lives, with millions of refugees and displaced people, enormous destruction in the infrastructure and, the worst sanitary crisis Syria has ever faced. He explained to us that several factors interact on the health situation in Syria: persistence of fighting, climate change, COVID-19 and rising food and fuel costs. The families with winter ahead are caught between a rock and a hard place.

With increasing levels of food insecurity throughout 2020, because of COVID-19 disruptions and related worsened economic conditions, dietary quality and diversity have been negatively affected. The country's agricultural sector struggles to produce enough to meet the population's needs and the food insecurity is important. According to the World Food Programme (WFP) more people are in the grips of hunger than at any time during their country's decade-long conflict. Rainfall and Euphrates River levels affected too many people because a large part of the production of wheat and barley was lost. At the same time, the impact of the financial crisis in neighboring Lebanon, the declining value of the Syrian pound and the long-term effect of COVID-19 have all contributed to the country's economic downturn. Drastic measures and financial international help must be taken to stabilize the situation before mass migrations.

The total number of confirmed COVID-19 cases so far, according to the Ministry of Health (MoH) and Worldmeters.info, is around 47 560 and the number of deaths is around 2 719. The official COVID-19 death toll in Syria with a population of 17,5 million is low compared with other parts of the Middle East. An accurate and

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harmonized number of COVID-19 cases and fatalities is not available, hampering the understanding of the crisis's true scale.

Credible data collection is almost impossible. The reported number of COVID-19 cases is likely an underestimation of the real scale of the epidemic. There are great difficulties in deploying efficient tracking, monitoring and response systems due to the economic crisis, the impact of the ongoing conflict, the added operational difficulties due to COVID-19, and an under-resourced healthcare system. The inability of sufficient testing and timely identification of COVID-19 clusters could further spread the epidemic.

COVID-19 cases have soared to critical levels across Syria in recent weeks with health facilities reaching maximum capacity and unable to cope. Health infrastructures are still insufficient. Basic medical supplies, oxygen and tests and vaccine doses are in short supply. Covid-19 cases are also increasing in the country's northeast. Syria has administered 1 342 360 doses of COVID vaccines so far. The vaccination rate is very, very small. Assuming every person needs 2 doses, that is enough to have vaccinated about 3,9% of the country's population. Northeast Syria was hit hard by COVID Pandemic. The region is poor, isolated, and physically difficult to leave in a crisis. Many people are either unconcerned about this new wave, or unaware that it is happening. Hunger is more frightening than coronavirus. Wearing masks, social distancing and other safety measures are minimal.

More than almost two years into the global crisis, testing facilities in the country are still weak, making it difficult for specialists in Lab medicine and health professionals to assess the true impact of the disease or contain it. While precautionary measures against the spread of the virus were crucial to containing transmission, they exacerbated vulnerabilities by reducing availability and access to basic health services. The COVID-19 response diverted health resources and capacities across the country, at the expense of routine health services delivery.

Biologists were able to demonstrate great adaptability and to perform as much as possible all necessary tests for COVID 19. The Lab professionals were connected as often as possible with the main sources of information coming WHO & CDC & FDA and to lesser extend some other sources as IFCC website. Anecdotal Evidence have showed that social media, Facebook, and WhatsApp, remains one of the main sources of health-related information. The support of International non-governmental organizations was precious for the availability of test kits and oxygen. There is a sizable participation of the SCLA national society in decision making of MoH concerning the management of COVID-19.

COVID-19 has disrupted the livelihood sector overall. It is difficult to untangle the specific effect of the COVID-19 pandemic on the health needs from other factors at play in the country. All drivers are intertwined and impact the whole population, the COVID-19 related restrictions had such a disproportionate effect on the economy. Similarly, it was difficult even sometimes impossible for the healthcare system to cope with this new influx of patients. Syria still has a lot to do with resolving the healthcare gaps and fixing the dire livelihood conditions resulting from the pandemic crisis.

The vital role of lab medicine professionals in the fight against the COVID-19 pandemic

– Israel's point of view –

by Marielle Kaplan
Lab Director at Rabam Medical Center Haïfa (IL)
National Representative, The Israeli Society for Clinical Laboratory Sciences (ISCLS)

~ Presented at the JIB round table (64th Edition) 22/11/21, hosted by Bernard Gouget, IFCC TF HIstory and François Blanchecotte, President JIB 2021 ~

Marielle Kaplan

As of 21.11.21, the overall number of Covid-19 positive cases in Israel stands at 1,340,254; 5,295 active cases and 8,154 deaths (0.09%) for an overall population of 9.2 million. The vaccination program includes addition of a third dose available for all the population since August 2021. The current vaccination status is 1st dose: 68%, 2nd dose: 63%, 3rd dose: 44%.

Clinical laboratories in Israel are mainly in the public sector. They include Community Mega laboratories systems with high throughput automated systems, including tests needed for Covid-19 Pandemic, hospitals laboratories that offer the routine as well as the most specified services, and five new private laboratories dedicated only to Covid tests that were raised since the beginning of 2021 with very high throughput (overall up to 60, 000 samples per day). All Clinical Laboratories are contributing to the National Testing Capacity, offering a maximal capacity of 200,000 PCR tests per day.

During this period, we have seen some major improvement and development in our testing capacity regarding the fight against the Covid-19 Pandemic in Israel:

- **Implementation of High-Throughput PCR via pooling** (up to 20 samples, with an estimated false negative rate up to 5% below Ct 35). Valid when positive rate is below 5%.
- **Validation** of new technologies and kits as they are developed verified in reference labs (according to harmonized protocols) and approved by the ministry of health nationally.
- Introduction of **Sequencing program for Variant Detection**: National program for sequencing all positive samples, especially positive samples from passengers returning to Israel (Mandatory Testing).
- Emphasis on a **connection between all the data systems** across different organizations including ministry of health.

During this pandemic, medical biologists definitively demonstrated an outstanding organizational capacity and adaptability to meet all health emergency needs, although they were only rarely included in decision-making. Professional information was delivered through local ministry of health, CDC, and FDA databases, as well as reagents suppliers. During all this period, all laboratories, including new private clinical laboratories, were

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required to comply with all quality assurance regulations according to ISO standards and accreditation where applicable (mainly hospitals).

Medical biologists' expertise has been recognized after 18 months of COVID, mainly in professional circles (inside hospitals and HMO as well as by the ministry of health representatives) and our profession has gained notoriety but not really with the overall public or with political representatives. There is no doubt that medical laboratories are recognized as highly professional institutions and medical biologists, as a profession, are associated with high reliability of tests. Moreover, although this pandemic has definitively accelerated the digitalization of medical laboratories activities, there is still significant room for improvement especially at the level of digital connections between different institutions using different computer systems.

Our local society (ISCLS) is constantly trying to work for a better recognition of medical biologists as experts in diagnosis in the care process and in prevention, and we definitively see significant results in the field.

The future of our profession is evolving toward a paradigm of a constant need for more efficiency together with a tremendous need for more specialization. We will need to find the relevant platforms allowing us to emphasize the major role of medical biologists in the diagnostic process whether it is academic activities, collaboration with clinicians and active participation in national health forums.

Happy Holiday Season

Wishing you Happy Holidays and best wishes for a healthy and prosperous New Year!
The IFCC Executive Board and Office Staff.

The IFCC Office will be closed for Christmas Holidays from December 24th to January 2nd, both inclusive.

EUROPEAN FEDERATION OF CLINICAL CHEMISTRY AND LABORATORY MEDICINE

The EFLM Executive Board informs
The new EFLM Task Force: Green Labs

by Tomris Ozben
Chair, EFLM TF-Green Labs
EFLM President-Elect

EFLM is proud to inform the establishment of the "**EFLM TASK FORCE - GREEN LABS**" aimed to **implement sustainable practices in medical laboratories**.

The aim is to transform clinical laboratories into a safe and sustainable space by decreasing their deleterious environmental impact and implementing efficient actions in laboratories, and taking steps to minimize energy, water, and hazardous chemical use, as well as waste generation without compromising the quality of healthcare.

EFLM will lead the laboratory medicine community for the shift to carbon neutrality in line with the European Green Deal (EGD) Investment Plan, also known as the Sustainable Europe Investment Plan, which is aimed at making Europe the world's first climate-neutral continent by 2050. Becoming the world's first climate-neutral bloc by 2050 is a great challenge but also a great opportunity.

Good collaboration among the European Union (EU) healthcare systems and a common vision for future actions would help to achieve such goals. The effectiveness of the EGD depends on the involvement of all EU stakeholders. The European Commission in line with the Paris Agreement for climate has already taken some initiatives, developed and distributed a high-quality Guide entitled "Energy intelligent, energy Europe; towards zero carbon hospitals with renewable energy systems" in Europe by providing them suitable tools to achieve greater sustainability. https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_24.

Laboratory medicine should contribute to a sustainable healthcare system and environment-friendly laboratories ensuring that resources are used efficiently from ecological, social, and economical perspectives, while providing high-quality services to patients and physicians.

Sustainability measures should be a key feature in the rapidly changing healthcare environment. It will be a challenge for clinical laboratories to achieve sustainable operations to reduce their negative impacts on the environment and economy. Clinical laboratories use more energy and water than offices, generate huge amounts of hazardous and non-hazardous wastes. Labs are large consumers of energy and thereby contribute to the largest percentage of carbon emissions. Due to their relatively high energy requirements, hospitals and laboratories must strive to achieve the long-term CO_2-reduction targets set by the European Commission. Incorporating sustainable practices into daily lab routine will go towards saving energy, reducing emissions, and helping the European Green Deal (EGD) to reach its Climate and Sustainability Action Plan.

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Clinical laboratories can limit their environmental impact and provide sustainable laboratory services making reductions in four key areas-energy consumption, water consumption, waste production, and use of hazardous chemicals. Establishing sustainable development goals and applying multiple means for reductions in these key areas, hospitals and clinical laboratories can reduce their environmental impact.

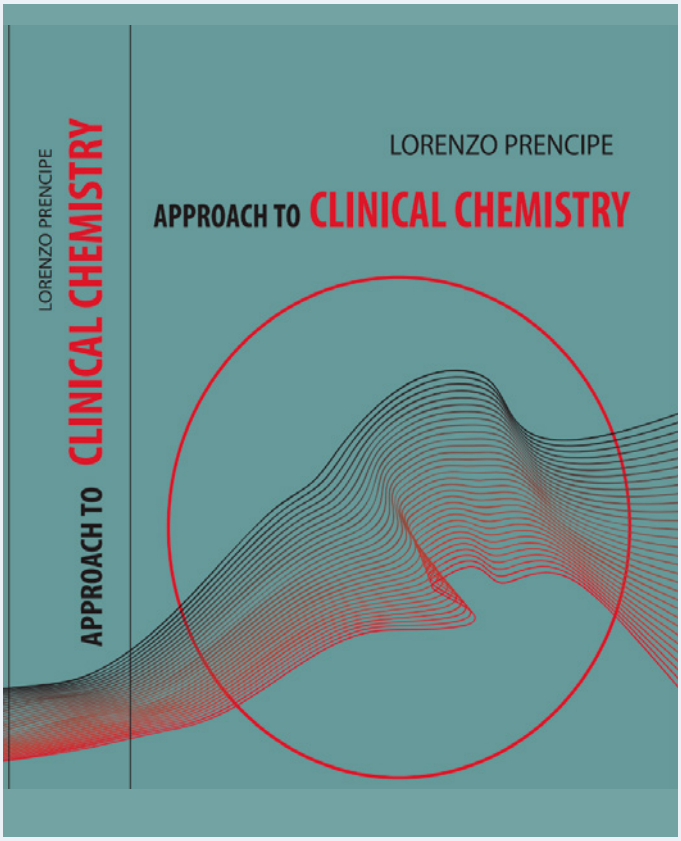
The EFLM Executive Board decided that EFLM should lead the way in implementing sustainable clinical laboratory practices in Europe and for this reason a new Task Force has been created: the EFLM Task Force "Green Labs".

The initial task of this new EFLM Task Force will be to create guidelines, criteria, and key recommendations for sustainable practices in clinical laboratories (a Green Lab Guide) and then to implement a system to guide Medical Laboratories towards the transition to Green Labs and then to monitor the status of Green Labs along the years by issuing an annual EFLM Certification for Green Labs.

Quality laboratory testing starts with operator training.
This book can help with that. You can buy it on https://amzn.to/2SRqtVM

Brief news about the author

Lorenzo Prencipe acquired his professionalism at the Clinical Biochemistry Laboratory of the of Milano Niguarda Hospital. Here he had the opportunity to develop analytical methodologies related to blood components, then adopted worldwide. He has published over thirty works in international journals. The dominant themes of his publications have been: development and improvement of analytical methodologies, quality control. The method for the *determination of uric acid*, today globally accepted has obtained the "Classical Citation" in the prestigious American Journal of Clinical Chemistry, while another one has had over 2400 bibliography citations.




Milano Niguarda Hospital

A clinical chemistry text written by a laboratory scientist who had lived through the evolution of the medical laboratory from the days when there was no such thing as a laboratory with its instrumentation to the new, faster tests for Covid 19

The particular value of this book is that its structure and approach help professionals meet the requirements set by the new challenges, of which I would highlight the support of ISO 15189 International Standard.
You can get to know the first few chapter's basic concepts to work in a laboratory analysis, use statistics, reference values, sources of variability, and get help to meet the requirements of ISO 15189. All these in a simple, understandable way.
The book cannot be absent from any laboratory, and it may be the most commonly used manual for laboratory staff and assist physicians in interpreting laboratory results. *[Rozália Czikkely MD, Past member in Accreditation WG of EC4, and of Hungarian National Accreditation Body (NAT)]*

Sensitive response from public and private laboratories to coronavirus global health emergency

by Rosa Sierra-Amor
Former IFCC EB Regional Representative
Past President, Mexican Association of Clinical Laboratory Sciences
Member WG eNews

~ Presented at the JIB round table (64th Edition) 22/11/21, hosted by Bernard Gouget, IFCC TF HIstory and François Blanchecotte, President JIB 2021 ~

Rosa Sierra-Amor, PhD

Mexico is located in the norther part of the Americas, bordered by the United States to the North, and by Guatemala and Belize to the South. Migration from Central America occurs all the time, including people coming from Haiti and Cuba.

In conjunction with Covid 19 epidemic, migration does not facilitate the eradication of this virus, on the contrary, although the government is trying to cope with the situation and has already provided the Mexican people with two doses of vaccines through the thirty-two states, not everyone has received the vaccine yet.

With a population of 126 million people, it is difficult to vaccinate the whole population. Nevertheless, by now, 76% of the population had at least one dose, and 68 million people has completed two doses by November 2021. Mexico City and Quintana Roo states have covered more than 90% of their population, however Chiapas has vaccinated only 60% of people.

In an effort to provide the vaccine to the whole population, different types of vaccines were provided, e.g. senior people were first vaccinated with Pfizer, then each group of young adults followed it, as well as teenagers, and now children with chronic diseases have been enrolled. Teachers from kinder garden to elementary school got AstraZeneca. Also, CanSino was provided. Therefore, and dependent where you live either two or one doses were provided; even however, it was possible to do it, there are a group of citizens that hesitate to be vaccinated, they are not the biggest group.

Today, everyone registered at the government's *Mi Vacuna-Salud* registry can download a certificate after vaccination is completed. The certificate includes their identification number, the name and lot of vaccine used, date and place where the vaccine was provided. By now, as we write this article, there are thirty-eight thousand Covid 19 cases in the country.

The Institute of Epidemiological Diagnosis and Reference (InDRE) http://www.indre.sys.salud.gob.mx/RNLSP/ has recognized more than 120 laboratories to do the diagnosis of Covid 19 for epidemiology purposes. This initiative has harmonized the use of PCR technique in the private, university and public healthcare sectors. However, during the spring of 2020 in particular, the laboratory was performing mostly Covid testing; regular patients were not attending, physicians were conducting zoom appointments, using digital platforms, laboratory personnel had to move from regular testing to more specialized one, therefore, training was very important,

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several professionals in laboratory medicine as well as medical residents, and nurses were hired to take part in such training.

In general, all healthcare workers were pushed to be front line demonstrating courage and responsibility to cope with the situation. The laboratory was involved in a very critical and demanding situation allowing it to be the center of the healthcare system for a definitive time. This situation pushed professionals to develop a more pro-active attitude, to be recognized as essentials workers of the healthcare system. An excellent example of this initiative has been the University of Guadalajara that established by itself more than 200 sites to take samples, running more than one thousand PCR tests free of charge to the population of Jalisco state.

On December 1st, the day of the Clinical chemist is celebrated in Mexico; similar celebrations at different times during the year take place in other Latin American countries. Therefore, the IFCC initiative to participate in the Day to celebrate the Laboratory, will be a worldwide effort to encourage our profession to be part of the health-care system in a more active and determined way. The future is in our hands, we should help young scientist to work hand in hand with the health authorities to be part of decision making for the good of the patient. It is necessary to act with solidarity and everyone has to help each other for the common good !

Footnote: "This article only refers to the information provided by the Mexican government websites. Any other publications might differ in numbers".

Serbia in the jaws of the COVID outbreak

by Sanja Stankovic
Director, Center for Medical Biochemistry,
University Clinical Center of Belgrade, Serbia
Chair, Serbian Committee for Biochemistry
in Republic of Serbia Ministry of Health
President, Serbian Society for Clinical Laboratory Medicine and Science (SCLM)

~ Presented at the JIB round table (64th Edition) 22/11/21,
hosted by Bernard Gouget, IFCC TF HIstory and François Blanchecotte, President JIB 2021 ~

Dr. Sanja Stankovic

It has been almost two years since, in the beginning of March 2020, the first case of coronavirus was reported in Serbia (officially the Republic of Serbia), the state in Central and South-eastern Europe on Balkan Peninsula, with a population of over seven million people. Since then, progressive measures were in place to detect and contain the disease. Although, Serbia received initial recognition for its approach in COVID-19 containment, its health system resilience was tested as the pandemic continued to infect more people. As of 21 November 2021, Serbia has 1,233,057 confirmed Covid-19 positive cases, 5,891 active cases, 218 patients on ventilators and 11,225 deaths (mortality ratio 0.91%).

In order to ensure timely and coordinated treatment and undertaking of activities by the competent authorities, organisations and services, as well as other entities related to the control of infectious disease COVID-19, the COVID-19 Infection Disease Crisis Response Team has been established co-chaired by President, Prime Minister, Minister of Health, etc. WHO praised Serbia's results in handling the coronavirus pandemic, from the procurement of Personal Protection Equipment, vaccines, medical ventilators and the newest medicines, improvement of the health system of Serbia during pandemic, including opening of three huge Covid hospitals constructed in only four months with more than 2000 beds (about 600 beds in intensive care). During the pandemic, 30 percent of those ill with COVID-19 in Serbia had access to hospital treatment. At the time, when the first coronavirus positive patient had been registered, Serbian health system employed more than 100,000 people, who had to quickly adapt to the new situation. Only In the first month of pandemic in Serbia more than 2,500 doctors, medical biochemists, nurses and laboratory technicians have been employed who were previously doing residency or had fixed-term contracts, and this action was continued in 2021. Temporary hospitals in Serbia were opened mainly in Fairs, schools with the idea to isolate COVID positive patients who have mild illnesses so that the disease does not spread further, but also to be under constant medical supervision. Testing and sample processing capacity of Serbian laboratories has been rapidly increased with the opening of two huge laboratories constructed in a record time, in just three months. At the beginning of the pandemic, we could process

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approximately 500-1,000 samples a day, whereas today this figure stands at as many as 25,000 samples a day. As of 21.11.21, the total number of tested people from the beginning of pandemic is 6.678.129. Meanwhile the project "Sustainable production of a serological ELISA for antibodies against SARS-CoV-2 virus" was implemented in Serbia.

Serbia started vaccination on December 24th 2020, earlier than the majority of European countries. In many vaccination posts in Serbia, citizens, diplomats, foreigners, people from neighbouring countries, refugees, can get vaccine shots without prior registration and they can choose the vaccine they wish to receive. Until today, five vaccines (Pfizer-BioNTech BNT162b2, Sinopharm/Beijing BBIBP-CorV (Vero Cells), Gamaleya Sputnik V, Oxford/ AstraZeneca AZD1222, and Moderna mRNA-1273) were approved and available for use in Serbia. 7.8 million doses of vaccine were administered for COVID-19 in Serbia. Around 57 percent of adult citizens are fully vaccinated (the most with Sinopharm and Pfizer-BioNTech), and since June 2021 a third dose available for all the population. About 23 percent of the population got vaccinated with the third dose. It influences the improvement of the epidemiological situation. We hope that the expansion of capacities at the Torlak Institute of Virology, Vaccines and Sera in Belgrade and two new vaccine production lines will increase citizens' trust and lead to a more massive vaccination. All these activities were followed by digitalisation which will lead to fundamental changes in the health sector, especially connecting all data systems in a common system and founding new contact centres and information platforms.

In the global fight against this pandemic, clinical laboratories have had an important role. Pandemic has been a real challenge for the laboratory medicine community. It has tested its preparedness and response to one of the most serious public health threats that our world has faced in recent history.

Since the beginning of the pandemic, Serbian laboratory workers have been, selflessly and tirelessly, on the frontline of the fight against the COVID-19 infection. Laboratory workers showed a lot of energy and efficiency and demonstrated their organizational capacity and adaptability to meet health emergency needs. Although laboratory medicine was not an invisible profession in medical community in Serbia, general public was not considerig us as first line responders in their healthcare experience. It seems that pandemic revealed the "hidden profession" that can save our lives.

Clinical laboratories have come in the focus of attention for their very significant role in: molecular testing, SARS-CoV-2 RNA detection, and serological testing for SARS-CoV-2 antibodies in monitoring vaccinated subjects, in vaccines clinical studies, for "late diagnosis" in subjects with no, or minor, symptoms who have not undergone molecular testing. The main pilar in laboratory diagnostics in Serbia were public laboratories. They performed molecular testing of SARS-CoV-2 infection, and serology testing, until private laboratories were included in serology testing and Rapid Ag testing. During this lasting crisis, it has transpired that timely provided service and the quality of „routine" clinical biochemistry laboratory diagnostics (clinical biochemistry, haematology, and coagulation tests) in the sense of initial diagnostic patient examinations, as well as biochemical monitoring of inflammation biomarkers/multiorgan dysfunction of hospitalized patients suffering from the severe form of COVID-19 with complications, is of invaluable importance for public health and safety. We showed that we are not simply a result generating service, but we have key role in validation of laboratory methods and platforms, adopting and managing POCT in ICU, etc.

Serbian Government recognized very well the importance of laboratory medicine from the beginning of the pandemic as members of COVID-19 Infection Disease Crisis Response Team with very important role. They provided advice on the effective utilisation of rapid diagnostic test, POCT and they were directly involved in decision making about the selection of tests, platforms, etc. Ministry of Health RS and Institute for Public Health RS consulted Republic Committee for Biochemistry about the introduction of new tests for molecular and serological diagnostics and writing recommendations. Information about organisation and reagents were delivered through Serbian Ministry of Health, CDC and FDA databases, as well as distributors of reagents and instruments.

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As the person who was in charge to the reference medical-biochemical laboratory center in Republic of Serbia, and the clinical laboratory in the biggest Covid hospital in this part of Europe, I have to emphasize that this pandemic was the true test of leadership. We have learned very important lessons about laboratory management. We faced significant challenges in staffing the labs and keeping staff safe. The Risk Management Strategy that we had defined helped a lot. The presence of total laboratory automation, and sufficient supplies of reagents and consumables made our work easier. Carrying out laboratory work at an additional location, establishing new laboratory, new equipment installation, as well as new staff training for operating was additional challenge. Spreading of POCT instruments on different locations, accelerated installation of additional e-communications and induced us to apply for ISO 22870 accreditation in local accreditation body.

In this difficult period for all of us, we were also "dealers of hope" for the people we lead. The main hallmark of our work is certainly flexibility and solidarity. I was most impressed with the resilience and agility of laboratory staff. They adapt to the changes at work, but they also figured out how to balance the stress of the pandemic, the general uncertainty. I am most proud we have maintained the same level of excellence as pre-COVID-19, maintained continuous service delivery throughout the pandemic, both to non-COVID patients, emergency non-COVID patients with non-communicable diseases. 10% increase in salaries for health care workers and health care providers approved by the Government from the beginning and additional income for health workers working in covid hospital was also additional stimulation.

Three years ago, we found our society SCLM with the idea to recruit the very best, most innovative, health professionals from diverse backgrounds in Serbia, from public or private sector directly or indirectly involved in laboratory medicine field with an opportunity to network, collaborate, connect, and strengthen the cooperation with the most important stakeholders in Serbia. It turned out that this concept has greatly strengthened the position of laboratory medicine in Serbia today, that our opinion is heard and respected. Serbian Medical Chamber made us great honour by inviting us to publish a review paper in their official journal entitled „Clinical laboratories in the era of the Covid-19 pandemic: an analysis of Serbian experiences."

During the COVID-19 pandemic, we have been forced to change the mode of implementing continuous medical training. Congresses, traditionally organized by the SCLM, every year, which usually host more than 3,000 participants, have been replaced with online tests, accredited by the Health Council of the Republic of Serbia, whereby the participants were provided with the opportunity of gaining new insights into current topics (biochemical, serological, and molecular diagnostics in COVID-19, biomarkers of interstitial lung disease and pneumonia), as well as procuring the requisite number of points necessary for their license renewal. During the most serious public health threats that our world has faced in recent history, we did not forget research. Except local research studies, some of laboratory medicine specialist were elected as co-workers in 15 winning scientific and research projects within the Special Research Program on COVID-19 and granted the Science Fund of the Republic of Serbia.

How do we see our profession in the future? We still live in the time when coronavirus is present and a lot more time will have passed until we see how the world will look in terms of new normality and how it will influence laboratory medicine field. It is clear that after 18 months of COVID-19, laboratories emerge from the shadows, gain new visibility to showcase the value of laboratory medicine in diagnostic-therapeutic pathways and personalized therapy, to the rest of the medical community and to the public consciousness. It has transpired that timely provided service and the quality of laboratory diagnostics, is of invaluable importance for public health and safety. Now, we must continue to show the true value of laboratory medicine as an integral part of Serbian healthcare system more broadly. If we want to be successful in the long term, we must continue to force laboratory medicine in service of healthcare, we must force our role not only in improving analytical quality, but to become the important player in making diagnosis, supportIng patient treatment, clinical follow-up and prognosis, approaching our

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very important goal called effectiveness. Also, providing the education, to help operational use of data through advance machine learning. SCLM started this kind of education before pandemic during CLAQ conferences they annually organised. From today's viewpoint, the main precondition is that laboratories should have enough staff, in order to be flexible in their work. It is also important that the staff is equipped with the appropriate personal protective equipment and resources for work, as well as that the management is experienced and prepared for efficient operation during a crisis, ready to change laboratory organisation, while applying motivation strategies and strategies for promoting mental and physical health.

As a part of laboratory community, we can be very proud, and it is amazing what we have accomplished during COVID -19 pandemic. We faced this challenge, and we persevered. We hope that we will have positive outcomes from this extremely challenging period, become stronger than ever before, both organizationally and professionally in line with a patient-centred focus, and ready for the numerous challenges that lie ahead.

News from the Spanish Society of Laboratory Medicine (SEQC^{ML})

The SEQC^{ML} presents the first White Paper on Laboratory Medicine in Spain

Recently, due to the COVID-19 pandemic, the Clinical Laboratory has become more visible to the general population and its essential role in improving health has been highlighted.

However, despite its importance, to date there has been no reliable database on the number of laboratories in operation in Spain, which has made it difficult to know their activity, staff, and organization.

The Spanish Society of Laboratory Medicine (SEQC^{ML}) is the Spanish representative in the European (EFLM, European Federation of Clinical Chemistry and Laboratory Medicine) and international (IFCC, International Federation of Clinical Chemistry and Laboratory Medicine) federations. Aware of its responsibility as a leading scientific society in Spain, it has decided to prepare the first White Paper on Laboratory Medicine, in order to shed light on and give visibility to clinical laboratories in Spain and thus obtain an up-to-date picture of them, collecting information that did not exist previously.

All the members of the Executive Board of the SEQC^{ML} participated in its preparation, and partners from different Autonomous Communities and an external consultant have collaborated as well.

Dr. Imma Caballé, president of the Spanish Society of Laboratory Medicine, considers that having this White Paper allows us to know better the reality of the profession, understand the size of the sector, number of laboratories, organizational structure, response capacity, professionals involved, and the activity carried out. With the data included therein, it is possible to analyse current and future needs, evaluate decisions to be made, and act in the best interests of the future of our profession.

Data for 2019 were collected from 174 clinical laboratories, which reported having responded to 55.9 million requests and performed 800 million determinations. Preparing a study with the data from 2020 was ruled out due to the distortion that the COVID-19 pandemic would cause in the analysis.

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The FENIN Report for 2018 places the number of determinations at 880 million, while the data collected in this report would represent approximately 90% of that value.

PROFESSIONAL AND TECHNOLOGICAL CHALLENGES FOR INNOVATION AND CHANGE MANAGEMENT IN THE LABORATORY

Dr. Antonio Buño, vice president of the Spanish Society of Laboratory Medicine, believes that this White Paper aims to help identify and establish the professional and technological challenges necessary for innovation and management of change in the Clinical Laboratory.

A clear example, Dr. Caballé points out, is the need to renew the professional staff. The aging of the workforce makes it necessary to seriously consider replacement by new professionals. However, in order to expand the number of residents it is necessary to know the current situation, and this information on clinical laboratories was totally insufficient prior to the preparation of this White Paper.

According to the data collected in the document, clinical laboratories in Spain have a need for job openings to renew the workforce that will involve around 20-25% of qualified professionals in the next 5 years (23% of staff are over 60 years old).

In a broader view, in the next 15 years it will be necessary to renew more than half of the clinical laboratory staff, so if the plans are not adapted in time to the expected demand, in a few years the shortage of professionals in the sector will begin to be evident.

Another essential issue for the future of Laboratory Medicine, as extracted from the document presented under the auspices of the National Congress of the Clinical Laboratory (LabClin 2021), is the unification of the specialties of Clinical Analysis and Clinical Biochemistry into one single specialty that unifies the training of residents and increases the possibility of work in all the Autonomous Communities. For the president of the SEQC^{ML}, this unification cannot be delayed any longer, and while carrying it out it will be necessary to also increase the number of residents to compensate for the decrease in professionals due to age.

The activity of the Clinical Laboratory is also determined by technological change and by innovations in *in vitro* diagnostics. However, Dr. Buño points out, in order for innovation to start, we need to improve the regulation of procurement systems with public contracts so that they can be adapted to the reality of the laboratory.

THE VALUE OF LABORATORY MEDICINE

Laboratory Medicine contributes to the screening of diseases, their prevention and early detection, diagnosis, monitoring of the disease progression, and prediction of the response to treatment. The information generated in the Clinical Laboratory allows for crucial clinical decisions to be made that change the course of the disease, allow the best treatments to be chosen and, as a result, increase people's health and well-being.

The latest studies indicate that a large number of clinical decisions depend on data from the Clinical Laboratory, and their weight in the healthcare process is increasing significantly. The work of the Clinical Laboratory plays a fundamental role in clinical decisions compared to the cost it represents, which for Spain is around 3% of healthcare spending. According to data from FENIN, the total number of requests to clinical laboratories is around 65 million per year, resulting in the performance of around 880 million determinations per year.

Regarding the situation of Laboratory Medicine in Spain compared to other European countries, Germany continues to lead the per capita expenditure in reagents with 26 Euros / inhabitant, followed by France (24 €) and the United Kingdom (16 €). Spain presents figures similar to its neighbouring countries, with an average expenditure of 22 Euros / inhabitant and year.

Regarding accreditation by the ISO 15189 standard, which recognizes the technical competence of a laboratory and the reliability of the results, guaranteeing that certain quality and competence criteria are met, there is no uniformity among European countries, and depends on whether or not it is required. Thus, while 94% of the centres had this accreditation

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in the United Kingdom in 2014, in Spain this figure was negligible.

The SEQC^{ML} has advocated for years for the obligatory accreditation of all clinical analysis laboratories, and is the only laboratory society in Spain that has made this commitment. As its president highlighted, we must bear in mind that the Clinical Laboratory contributes decisively to the diagnosis, prognosis, and treatment of diseases and to the improvement of public health. Laboratory accreditation is a crucial step in achieving these goals.

Currently, in Spain only 85 laboratories are accredited according to this standard, according to the data of the National Accreditation Entity (ENAC).

FUTURE TRENDS IN LABORATORY MEDICINE

The aging of the population will have an impact on the general burden of disease on the public, mainly in chronic diseases, so the Clinical Laboratory will be directly affected by this greater demand for services.

Technological innovation also represents one of the determining factors in the future evolution of the Clinical Laboratory. The increasing level of automation that has been achieved in laboratories represents a remarkable milestone, allowing greater efficiency. In fact, the surveyed centres have carried out intensive work to incorporate digital and automation technologies into their operating models: 90% of the centres achieved the automation of more than 75% of their tests and 82% of the centres had electronic requests for more than 75% of their tests.

Likewise, the Clinical Laboratory will play a leading role in what has been called the Bio-revolution. Molecular biology and genomics are offering new sequencing opportunities that allow tests that were previously conducted only in research contexts to be performed in everyday clinical practice.

In addition, the application of big data and artificial intelligence in the Clinical Laboratory will be useful in areas such as the setting of reference values, quality assurance, clinical decision support, and population health monitoring.

Finally, environmental commitment is increasingly relevant in laboratories. According to the data collected in the questionnaire, at the national level approximately 90% of the laboratories have an environmental management program and 98% have a waste management protocol.

Spanish Society of Laboratory Medicine (SEQC^{ML})

The Spanish Society of Laboratory Medicine (SEQC^{ML}) —founded in 1976— is an active member of the international and European Federations of Clinical Laboratory, IFCC and EFLM. It currently encompasses almost 3,000 professionals and its main objective is to bring together all interested scientists in the Clinical Laboratory field, promote the dissemination of scientific and technical publications, organize national and international meetings, courses and congresses, and cooperate with other scientific societies. Likewise, the Society wishes to contribute to studying and recommending standardized methods and establishing guidelines and recommendations for training in the field of Laboratory Medicine.

For more information: www.seqc.es.

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IFCC'S CALENDAR OF CONGRESSES, CONFERENCES & EVENTS

Calendar of IFCC Congresses/Conferences and Regional Federations' Congresses

Dec 6 - 10, 2021	IFCC International Federation of Clinical Chemistry and Laboratory Medicine	*IFCC-ICHCLR-JCTLM Workshop on overcoming challenges to global standardization of clinical laboratory testing: reference materials and regulations*	Paris, FR Online event
Dec 8 - 9, 2021	IFCC International Federation of Clinical Chemistry and Laboratory Medicine	*IFCC WG-FC 2nd Course on Basics of Flow Cytometry, in collaboration with Clinical Pathology Department, Faculty of Medicine, Al-Azhar University*	Cairo, EG
Mar 30 - Apr 2, 2022	COLABIOCLI	*XXV COLABIOCLI Congress*	Leon, MX
Apr 10 - 14, 2022	EUROMEDLAB 2021 MUNICH	*XXIV IFCC - EFLM EuroMedLab Munich 2021*	Munich, DE
June 25 - 26, 2022	IFCC International Federation of Clinical Chemistry and Laboratory Medicine	*IFCC Forum for Young Scientists*	Seoul, KR
June 26 - 30, 2022	IFCC WorldLab SEOUL 2020	*XXIV IFCC WORLDLAB Seoul 2022 XVI APFCB Congress Seoul 2022*	Seoul, KR

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May 21 - 25, 2023		*XXV IFCC - EFLM WorldLab EuroMedLab - Rome 2023*	Rome, IT
New date TBA		*AFCB Congress 2022*	Beirut, LB

Other events with IFCC auspices

Aug 2, 2021 - Apr 3, 2022	*Virtual Diplomat in Selected Topics of Diagnostic Hematology for the Laboratory (Advanced Level) Second Generation*	Mexico Online course
Dec 3, 2021 - Jul 3, 2022	*Virtual Diplomate in Clinical Biochemistry*	Mexico Online course
Dec 12 - 15, 2021	*47th Annual conference of Association of Clinical Biochemists of India (ACBICON 2021): "Towards a Better Tomorrow"*	India Online event
Jan 24 - 27, 2022	*Medlab Middle East Congress*	Dubai, UAE
Feb 10 - 11, 2022	*International Congress on Quality in Laboratory Medicine*	Helsinki, FI
May 15 - 18, 2022	*6th EFLM Preanalytical Conference: Preanalytical quality an interdisciplinary journey*	Online event
May 23 - 26, 2022	*10th Santorini Conference "Systems medicine and personalized health and therapy" – "The odyssey from hope to practice: Patient first – Keeps Ithaca always in your mind"*	Santorini, GR
Oct 4 - 9, 2022	*FEBS Advanced Course: 360-degree Lysosome; from structure to genomics, from function to disease-update*	Izmir, TR
Oct 14 - 17, 2022	*46th ISOBM Congress*	Bled, SI
New date TBA	*XXII Serbian Congress of Medical Biochemistry and Laboratory Medicine & 16th Symposium for Balkan Region*	Belgrade, SRB

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Regional Federations

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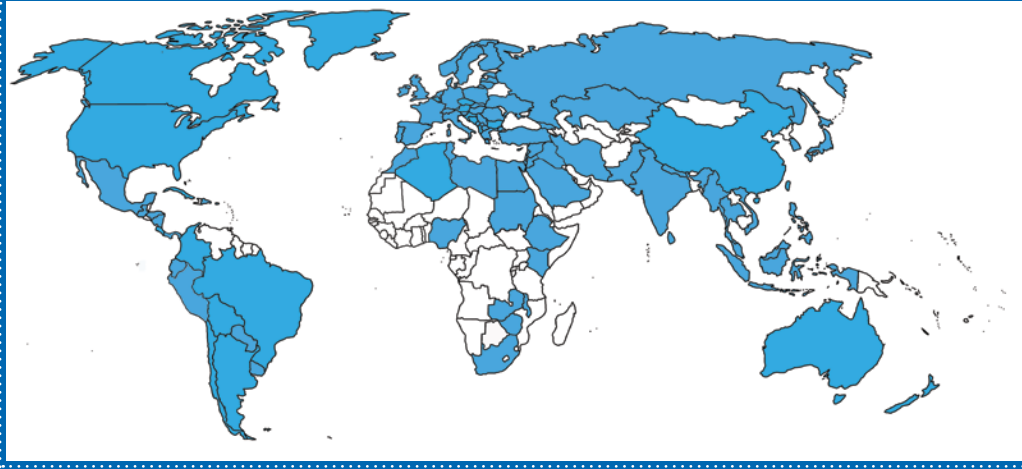
Latin America Confederation of Clinical Biochemistry (COLABIOCLI)
North American Federation of Clinical Chemistry and Laboratory Medicine (NAFCC)



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France: French National Network of Accredited Laboratories of Medical Biology (LABAC)
India: Association of Medical Biochemists of India (AMBI)
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Sri Lanka: College of Chemical Pathologists of Sri Lanka (CCPSL)
Turkey: Society of Clinical Biochemistry Specialists (KBUD)
Ukraine: Association for Quality Assurance of Laboratory Medicine (AQALM)
United Arab Emirates: Genetic Diseases Association (UAEGDA)

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N° 7/8 – July/August: by mid June

N° 9 – September: by mid August

N° 10 – October: by mid September

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