

**International Federation
of Clinical Chemistry
and Laboratory Medicine**



Advancing excellence in laboratory medicine for better healthcare worldwide

Handbook 2021-2023

**International Federation
of Clinical Chemistry
and Laboratory Medicine**



Handbook 2021-2023

IFCC will provide worldwide leadership in clinical chemistry and clinical laboratory medicine to professional societies, the diagnostic industry, governmental and non-governmental organisations to serve the public interest in health care.

1 July, 2021

IFCC HANDBOOK 2021-2023

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Note

The order of this Handbook has been largely determined by the IFCC Numbering System that was originally designed and implemented by Prof. Mathias M. Müller. Wherever possible the numbering of Chapters and Paragraphs complies with this system. Where this is not possible the appropriate IFCC Number is given in brackets alongside the Handbook entry.

It is helpful to use the IFCC Numbering System when corresponding with IFCC about any topic. A summary of the full IFCC Numbering System is included in Chapter 16 of this Handbook (Paragraph 16.8).

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Handbook of the International Federation of Clinical Chemistry and Laboratory Medicine

2021-2023 Edition

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Chapter 1

Organisation, Structure and Function of IFCC

1.1. INTRODUCTION

The International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) is a worldwide, non-political organisation for clinical chemistry and laboratory medicine. As such, it has a range of roles that include (1) global standard setting in collaboration with other international organisations, (2) supporting its members through scientific and educational endeavours, and (3) providing a series of congresses, conferences, and focused meetings for laboratory medicine specialists to meet and present original findings and best practice.

The IFCC relies very heavily on volunteers to run the organisation and to undertake its range of activities and programmes. Those volunteers are constantly changing and so a reference document is required to assist people who want to learn more about the IFCC and its operation. That reference document is this IFCC Handbook. The production of the IFCC Handbook occurs once every three years to coincide with the term of each Executive Board. However, IFCC is a dynamic organisation that evolves constantly. The most up to date information about the IFCC is always available from the IFCC website (www.ifcc.org).

The Handbook puts in one place all the information about the function and operation of the IFCC. This includes the organisation of the FCC and its aims and strategic objectives over the three-year life of the Executive Board. Also, it includes details of IFCC programmes and projects. The Handbook lists, in logical order, IFCC Regional Organisations, Divisions, Committees and Working Groups. The Full Members, Corporate Members and Affiliate Members are also included. Contact names and addresses are included for the many people who work with and for the IFCC. Finally, the necessary Statutes and Rules of the IFCC are published in the Handbook. We thank the many individuals responsible for preparing this useful document. In particular we thank Dr Graham Beastall, an IFCC Past President, whose long experience and deep knowledge of IFCC was fundamental for the revision and completion of this publication.

Khosrow Adeli
President

David Kinniburgh
Secretary

1.2. ORGANISATION OF IFCC

The IFCC has three Membership categories.

- Full Members that are recognised and established national societies of clinical chemistry and laboratory medicine. Only one Full Member can be accepted from each country.
- Corporate Members, that are individual companies, corporate entities or research organisations involved in the field of clinical laboratory practice.
- Affiliate Members that are allied international or national societies or organisations interested in the science and practice of laboratory medicine. Multiple Affiliate Members can be accepted from each country.

The organisational structure of IFCC is illustrated in the Figure 1. The governing body is the Council that consists of one Representative appointed by each Full Member (voting), Affiliate Member, and Corporate Member. It convenes at the triennial International Congress of Clinical Chemistry and Laboratory Medicine. Between Council meetings, the business of IFCC is conducted by the Executive Board that is elected by the Council. Any important questions that arise between Council meetings, such as the admission of new Full Members to the Federation, approval of recommendations, and changes or amendments of statutes are decided by electronic ballot of the Full Member Representatives voting on behalf of their societies.

Membership of IFCC is accorded to National Societies of Clinical Chemistry and/or Laboratory Medicine, each of which pays dues related to the number of members in its society. A Society applying for Full Membership of IFCC must show that it is a recognised society responsible for clinical chemistry and/or laboratory medicine in that country and satisfy the Executive Board that its statutes and by-laws are in accordance with the principles of the Federation.

The Executive Board comprises the President, Past President or President Elect, Secretary, Treasurer, one representative elected by each of the six Regional Federations, and an individual representing Corporate Members. The Executive Board normally meets three times a year; the Chairs of the IFCC Divisions attend at least one EB meeting per year. During the COVID pandemic, the EB has met monthly via Zoom conferencing.

The IFCC carries out much of its business through its Divisions and Committees.

There are currently four Divisions, each of which has an Executive Committee that reports directly

to the Executive Board.

- Scientific Division
- Education and Management Division
- Communications and Publications Division
- Emerging Technologies Division

The Committee for Congresses and Conferences also reports directly to the Executive Board.

Every three years, the Executive Board appoints two further committees, namely, the Nominations Committee to prepare a slate of candidates for elections for the next Executive Board, and the Awards Committee to select the recipients of the IFCC awards. The Executive Board may also appoint Special Project Committees and Task Forces.

Much of the work of the Divisions is delegated to Committees, which report to the Division Executive Committees. These Committees have broad responsibility areas and tend to function for several years. Members of the Division Executive Committees, together with the Chairs of the Committees within each Division, are appointed by the Executive Board; ordinary members of Committees within each Division are appointed by the Division Executive Committees, with approval from the EB. Divisions may also appoint Working Groups to work on defined projects. Working Groups are dissolved when their specific projects are completed, although their work may lead to the establishment of Committees

or other activities funded by IFCC.

All IFCC Members (Full, Corporate and Affiliate) are invited to nominate candidates to serve on Division Executive Committees, Committees, Working Groups and Task Forces. Appointment is according to merit without respect to nationality or other affiliation, although geographic representation is recommended, and a Young Scientist is required on all Committees. Members (Full, Corporate and Affiliate) are also invited to participate in the work of Division Committees, Working Groups and Task Forces by nominating Corresponding Members. Division Executives and Committees are funded by the IFCC, most of the work of Working Groups is done without financial support from the IFCC.

The other key part of the organisation is the IFCC Office which is located in Milan (IT). This office is responsible for most of the daily and organisational matters and is the point of contact for all IFCC activities. The IFCC Office has responsibilities for supporting the Executive Board, Division Executive Committees, Committees and Task Forces, for maintaining the IFCC website and for all relevant documentation. The IFCC Office also supports the organisation of some IFCC Conferences. IFCC partially funds the support staff for the European Federation of Clinical Chemistry and Laboratory Medicine (EFLM), which is co-located with the IFCC Office.

The address of the Office is:

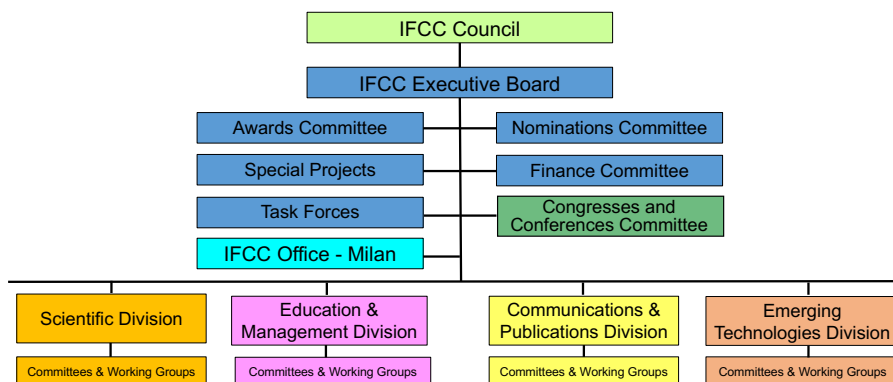
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Figure 1: IFCC Organisational Structure



1.3. THE IFCC EXECUTIVE BOARD 2021-2023

Biographies of the IFCC-EB members 2021-2023



President:
Prof. Khosrow ADELI

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Professor **Adeli** (PhD, FCACB, DABCC, FAACC) is the Head of Clinical Biochemistry in the Department of Paediatric Laboratory Medicine as well as a Senior Scientist in the Molecular Medicine Program of the Research Institute at the Hospital for Sick Children. He is also Vice-Chair of Quality and a Full Professor in the Department of Laboratory Medicine & Pathobiology at the University of Toronto in Toronto, Canada. He is very well known for his extensive national and international contributions over the past 30 years to clinical laboratory service, research, and education. Now, as President of the IFCC, his focus is on continuing the IFCC's journey towards global leadership in laboratory medicine by directly impacting healthcare and patient outcomes through efforts such as global newborn screening, directly contributing to global lab quality, becoming the largest provider of free eLearning, and ultimately continuing to promote the value of laboratory medicine worldwide.

Key Highlights of Professor Adeli's Qualifications:

- Past Chair (2013 - 2018) and Vice-Chair (2006 - 2012) of IFCC Communications & Publications Division
- More than 30 years of clinical chemistry academia and scientific experience in leadership positions
- Internationally recognized for outstanding contributions to clinical chemistry research, education, and service
- Prominent researcher with >600 peer-reviewed articles and abstracts, with >27,000 citations to published work, and many invited presentations

Leadership Positions:

- President, IFCC (2020 - 2023)
- Chair, IFCC Communications and Publications Division (2013 - 2018)
- Chair, IFCC Public Relations Committee (2007 - 2012)
- Board of Directors, AACC Academy (2015 - 2018)
- Editor-in-Chief, Critical Reviews in Clinical Laboratory Sciences (2013 - present)
- Scientific Advisory Board, International Centre in Genetic Engineering and Biotechnology (2009 - 2018)
- President, Commission on Accreditation in Clinical Chemistry (2007 - 2010)
- Editor-in-Chief, Clinical Biochemistry (1999 - 2006)

Research & Education:

- Over 30 years of basic and clinical laboratory research experience in the area of cardiovascular disease, type 2 diabetes, and lipid & lipoprotein metabolism

- Scholarly Impact (Google Scholar Statistics): h-index of 73 and i10-index of 273, with over 27,000 citations
- Development of the Canadian Laboratory Initiative on Pediatric Reference Intervals (CALIPER), the world-leading database of child and adolescent reference ranges adopted by clinical laboratories in over 100 countries worldwide
- Program Director of the Postdoctoral Training Program in Clinical Chemistry at the University of Toronto for 20 years (2000 - 2020)
- Trained over 50 clinical chemistry fellows, many of whom hold prominent positions in laboratories globally

International Award Recognition:

- 2020 Richard G. Hegele Award for Excellence in Research Innovation, Laboratory Medicine & Pathobiology, University of Toronto
- 2019 AACC Norman P. Kubasik Award
- 2019 AACC Academy Award for Outstanding Contributions to Clinical Chemistry
- 2018 Hungarian Academy of Laboratory Medicine Honorary Membership Award
- 2015 AACC Pediatric-Maternal-Fetal Division Award
- 2015 Ontario Society of Clinical Chemistry (OSCC) Lifetime Achievement Award
- 2015 Canadian Society of Clinical Chemistry (CSCC) Award for Innovation in Laboratory Medicine
- 2012 CSCC Award for Education Excellence
- 2010 ComACC Service Award
- 2006 CSCC Award for Outstanding Contributions to Clinical Chemistry
- 2004 Canadian Academy of Clinical Biochemistry (CACB) Award for Outstanding Contributions to Clinical Biochemistry

Contributions to IFCC and its Membership:

Professor Adeli recently completed a 12-year term on the IFCC Communications and Publications Division (CPD). He initially served as CPD Vice-Chair and later as Chair for 6 years. CPD is responsible for all IFCC publications and communication activities including the eNews, eJournal, website, eAcademy/eLearning, and public relations activities. During his term as Chair, he worked closely with the CPD executive, committees, and working groups and played a leadership role in significantly enhancing publication and communication activities of the IFCC organization. Key achievements of the CPD during Professor Adeli's leadership include:

- Creation of a Public Relations (PR) Committee and a global PR campaign on the value of lab medicine in healthcare
- A new and much improved IFCC Website

- An expanded and improved eNewsletter now published monthly
- Successful indexing of the electronic journal, eJIFCC
- Development of the eAcademy distance learning platform
- Development of an IFCC Mobile App to facilitate ready access to IFCC media
- Support of an enhanced DIV magazine for member societies across Latin America

Professor Adeli has also directly interacted with and personally knows IFCC national representatives from around the world as well as corporate members. As a result of his IFCC contributions and research achievements, he has been invited to deliver numerous presentations to IFCC national societies and/or regional/international conferences. He has therefore developed strong relationships with many IFCC member societies as well as many IFCC officers within the IFCC organization.

Personal Statement:

I am passionate about laboratory medicine and the opportunity to more extensively collaborate across our global communities to inspire and drive value to the profession and across healthcare. My considerable experience with the IFCC organization, numerous collaborations with IFCC members and member countries, as well as my productive track record during my term as IFCC division chair all collectively support my long-standing commitment and success to date.

The future holds considerable promise for the IFCC organization and its family of national societies and corporate members. I look forward to being part of the IFCC's continued journey towards global leadership in lab medicine, contributing to its most valuable mission of advancing excellence in laboratory medicine for better healthcare worldwide.

Future Vision for the IFCC Organization:

I strongly believe that the IFCC organization is in a unique leadership position to:

1. Directly impact healthcare and patient outcomes by working with developing countries around the world to advance programs such as Global Newborn Screening.
2. Directly contribute to global lab quality by
 - developing an international IFCC External Quality Assurance program and innovative quality improvement strategies to disseminate the concept of total quality management and quality systems approach to clinical laboratories and national societies, particularly in developing countries.

- developing a global consortium on reference intervals for adult and paediatric populations, facilitating harmonization as a long-term goal.
- 3. Become the largest provider of free Distance Learning/eLearning in the field of laboratory medicine worldwide. Through the new eAcademy platform and its vast network of experts, IFCC can develop the most comprehensive database of eLearning programs to support education by its member societies particularly in developing countries.
- 4. Continue to promote the value of laboratory medicine by gathering the evidence to demonstrate the value of lab medicine in clinical decision making and healthcare delivery, communicating this to the public and all stakeholders.
- 5. Encourage and support a culture of innovation in the IFCC community and communicate technological and process innovations to laboratory scientists and physicians globally. In association with regional federations, member societies, young scientists, and corporate members, ensure that IFCC is a driver of technological innovations, such as artificial intelligence and machine learning, and their application in laboratory medicine.
- 6. Become the leader in developing practice guidelines to ensure optimal application and utilization of diagnostic services and improved clinical decision making using IFCC's extensive and wide-ranging scientific expertise.

Together, Professor Adeli and the IFCC Executive Board have designed a strategic plan that encompasses these aims, setting the tone for a very productive period from 2021 - 2023.



Secretary:
Prof. David KINNIBURGH

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Dr. **David Kinniburgh** (MSc, PhD, DABCC, FCACB) is a board-certified clinical chemist and fellow of the Canadian Academy of Clinical Biochemists whose career in laboratory medicine spans more than four decades. He has worked in the public, private and academic sectors in clinical chemistry, toxicology and medical laboratory management, and is recognized as a qualified expert witness in clinical chemistry, toxicology and laboratory operations for the Canadian justice system.

Currently a Clinical Professor with the Department of Laboratory Medicine and Pathology at the University of Alberta and an Adjunct Associate Professor with the Department of Physiology and Pharmacology at the University of Calgary's Cumming School of Medicine, Dr. Kinniburgh is the Director of the Alberta Centre for Toxicology (ACFT) and a consultant in clinical chemistry, toxicology and medical laboratory operations. As Director of the ACFT, he oversees operations to provide the highest quality of public health toxicology testing for the province of Alberta while leading an active research program in the areas of environmental toxicology and human health.

Dr. Kinniburgh began his career in laboratory medicine in 1972 as a laboratory technologist and went on to receive his MSc in clinical chemistry and PhD in analytical toxicology from the University of Calgary. He did his post-doctoral training in clinical chemistry and toxicology at the University of Utah, and went on to become Vice President, Technical Director, and National Director of the Substance Abuse Testing Laboratory (SAMHSA accredited) at Dynacare Kasper Medical Laboratories in Edmonton, and later, Vice President, Laboratory Operations and Diagnostics for Isotechnika Inc., an Edmonton-based drug development company.

Dr. Kinniburgh was the inaugural Representative for the IFCC North American Federation of Clinical Chemistry and Laboratory Medicine (NAFCC, 2015–2017) and as part of that role, was an ex-officio member of the IFCC Executive Board (2015–2017). He was President of the Canadian Society of Clinical Chemists (CSCC) from 2014 to 2015 and served previously as their Treasurer. He is currently President of the Alberta Association of Clinical Laboratory Doctoral Scientists and has served as President of the Alberta Society for Human Toxicology and the Alberta Society of Clinical Chemists.

Dr. Kinniburgh has also served on a number of committees related to laboratory medicine provincially and nationally and currently sits on the LabCANDx Steering Committee, an organization established to promote the value of

laboratory medicine. He is a team leader for the College of American Pathologists Forensic Drug Testing Laboratory Accreditation program, and a member of the American Association for Clinical Chemistry Education Core Committee. He has also served on several organizing committees for local, national and international scientific conferences. In 2010, Dr. Kinniburgh was awarded the CSCC Award for Outstanding Contributions to Clinical Chemistry.

As part of his commitment to research and training, Dr. Kinniburgh lectures in the medical laboratory science course Applied Toxicology at the University of Alberta and in the University of Calgary Master of Biotechnology program. He also participates in the training and supervision of master's, PhD, and post-doctoral students as well as clinical biochemistry trainees, and sits on the University of Calgary Clinical Pharmacology and Toxicology, Resident Teaching Committee. He is active in a number of professional societies, has published articles and reports, made numerous scientific presentations to the medical and technical community and to the public sector, and has consulted to government groups and the private sector.

Dr. Kinniburgh lives in Calgary, Alberta, Canada with his wife Lynne, a retired nurse, and they have two grown children and six grandchildren. His passion is laboratory medicine, but he has many other interests and hobbies including sailing, motorcycling, reading and being an amateur handyman.



Treasurer:
Dr Alexander HALIASSOS

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Dr. **Alexander HALIASSOS** is currently the President and CEO of DIAMEDICA, a Greek reference laboratory specialized in Prenatal Diagnostics based in Athens since 2006. He also acts as Scientific Director of the Greek External Quality Assessment Scheme in Laboratory Medicine (ESEAP), a non-profit organization established by the Greek Ministry of Health as a spin-off of the Greek Society of Clinical Chemistry-Clinical biochemistry (GSCC-CB).

He obtained his MD diploma at the medical School of the University of Athens (1985) and, after his military service as medical doctor at the Greek Air Force (1985-1987), he obtained in 1991 his thesis (PhD) at the school of Medicine, National University of Athens, Greece. He pursued his scientific education at the Faculty of Medicine, Claude Bernard University, Lyon I (FR) where he gained a thesis (DEA) on electronics applied in the medical field, and one in human genetics in 1985. He had completed his curriculum in France as post-doctoral fellow (1987-1991) at the "Institute of Molecular Biology" of Paris-Descartes University.

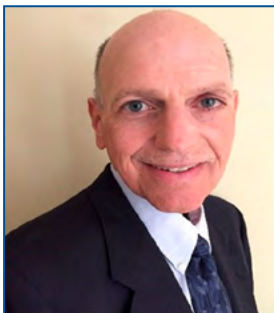
Dr Alexander Haliassos is registered as European Clinical Chemist (EurClinChem, now EurSpLM) since 2003. He fulfilled many responsibilities in teaching medical students at the National Research Foundation Institute for Biological Research and Biotechnology in Athens, Greece; in directing the core medical laboratory, including the Blood Bank of the Onassis Cardiac Surgery Center, the Athens Euroclinic and the Metropolitan Hospital at Athens, Greece and in participating in genetics research.

At the national level, Dr Haliassos has held a number of professional representative roles in Greece including GSCC-CB Executive Board member (1996-2003), then, as Scientific Secretary (2005-2011), as General Secretary (2012-2017) and from 2017 until today he is President of the GSCC-CB. Since 2011, he is a founding Member of the Scientific and Educational Committee of the GSCC-CB and a founding Member of the Greek National Registration Committee for Clinical Chemistry. He represents ESEAP at EQALM, and he is an elected member of HellasLab Executive Board, the Greek section of EuroLab. On behalf the Greek Society, he strengthened partnerships with multilateral agencies to promote the added value of laboratory medicine as a key factor to improve population health.

At the international level, Dr Alexander Haliassos is member of the American Association of Clinical Chemistry (AACC) since 1993, and the leading Editor of the website www.labtestsonline.gr. He is the IFCC

National Representative of Greece since 2005. During the last decade, he has been involved in various scientific and professional International/European committees and/or working groups. As member of the EFCC-Distance Education Programs – E-Learning”, he organized the very first EFCC e-seminars. Within IFCC, he served as member of the IFCC-WG on Standardization of Troponin I (WG-TNI) and as member of the IFCC-Analytical Quality Committee (C-AQ). In 2014, he was appointed as Chair of the IFCC-Task Force on Proficiency Testing (TF-PT) that in 2017 evolved to the Committee on Proficiency Testing (C-PT), a multidisciplinary effort of IFCC in the analysis and the exploration of the Proficiency Testing and External Quality Control issues.

For several years now, he intensified its engagements with the IFCC conferences and congresses acting as the Greek leader for the organization of the 10th IFCC-General Conference, at Corfu in 2010, as Member of the EuroMedLab Paris 2015 Congress Organizing Committee (COC) and as the President of EuroMedLab Athens 2017. Dr Alexander Haliassos published more than 56 papers in peer-reviewed scientific journals cited 1012 times (H-index 11), made more than 120 oral presentations in international congresses, participated in 155 posters in international meetings and chaired one international (EuroMedLab Athens 2017), two national congresses and several seminars on laboratory medicine subjects. His personal interests include: swimming sports, traveling, electronics, artificial intelligence and information technology applications.



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Joseph PASSARELLI is Senior Director, Scientific Relations at Roche Diagnostics Corporation. In this role, he represents Roche as a scientific liaison to professional societies and standard- and guideline-setting organizations worldwide. He has worked both domestically and internationally in research and development for more than 35 years and has experience in discovery, research, development, laboratory management, technology transfer, regulatory submissions, and market commercialization. His scientific background includes developing immunoassays that use multiple technologies for homogenous laboratory-based testing platforms. He is recognized in the fields of drugs of abuse testing and therapeutic drug monitoring. Before assuming his current role, Mr. Passarelli was head of Roche Diagnostics Research and Development for these scientific disciplines.

Mr. Passarelli is currently Secretary to the International Federation of Clinical Chemistry and Laboratory Medicine's Scientific Division Executive Committee. Prior to this role, he served as SD's corporate member. Mr. Passarelli is also the chair of the newly formed Task Force – Corporate Members (TF-CM) with his first term ending at the end of 2021. The main task of the TF-CM is to strengthen the collaboration between IFCC and its Corporate Members and to better address their specific needs and challenges. He is also a member of the Harmonization Oversight Group of the International Consortium for Harmonization of Clinical Laboratory Results (ICHCLR).

In addition to his activities with the IFCC, Mr. Passarelli has been active with Clinical and Laboratory Standards Institute (CLSI) for several years. Currently he serves on the CLSI Board of Directors as one of its Officers – Secretary and prior to this, as a member of the CLSI Consensus Council. He also serves as a member of the Executive Committee of the US Technical Advisory Group to the International Organization for Standardization (ISO) Technical Committee 212 – Clinical laboratory testing and in vitro diagnostic test systems. His professional interests include educating and promoting the value of standardization and harmonization through the use of recognized standards and guidelines and he collaborates extensively with professional organizations worldwide. Mr. Passarelli is a member of the American Association for Clinical Chemistry (AACC) Industry Division and received the 2014 AACC Presidential Citation for his contributions to laboratory medicine and education.



**Regional Federation
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Professor **Okesina** graduated with MBBS degree from the University of Lagos in 1980. He held a clinical attachment at the Institute of Neurology Queens Square London and East Surrey Hospital between 1987 and 1988. He became Fellow of the National Postgraduate Medical College of Nigeria (NPGMCN) in 1988 and of the West African College of Physicians (WACP) in Chemical Pathology in 1989. From 1991 to 1993, he was a Commonwealth Medical Research Fellow in Clinical Endocrinology at Hammersmith Hospital and Royal Postgraduate Medical College in London. He was appointed Lecturer 1 at the University of Ilorin in 1989, Reader in 1994 and full Professor in 2000. He was appointed Consultant Chemical Pathology Unilorin Teaching Hospital in 1989. He was visiting lecturer to University of Transkei (Walter Sisulu University) in South Africa between 1997 and 2000. Professor Okesina was former Vice-Chancellor, Osun State University Nigeria and Former Deputy Vice Chancellor of the same University. At the University of Ilorin, he was Former Dean of Faculty of Basic Medical Sciences.

Prof. Okesina has been involved with the annual revision and update courses of NPGMCN and WACP since 1993. He was Member of the Faculty Board of Pathology from 1993 to 1997 and Member of the Senate, NPGMCN from 2007 to 2011. He was Chairman, Faculty of Pathology of WACP from 2007 to 2011 and Chief Examiner for Faculty of Pathology, WACP from 2011 to 2013. He has been examining in the NPGMCN and WACP since 1993.

Prof. Okesina has served as external examiner to many Universities in Nigeria and Africa, including, Universities of Lagos, Ibadan, Jos, Ahmadu Bello, OAU Ife, Port Harcourt, Calabar, Cape Peninsula South Africa, Nairobi Kenya and Ghana. He is also a member of the accreditation team that visited the University of Ghana Teaching Hospital, University of Gambia Queens Hospital and many Universities and Teaching Hospitals in Nigeria.

Prof. Okesina has won several academic distinctions and scholarships, including the Oyo State Merit Scholarship Award and the Commonwealth Medical Fellowship, which he spent in Britain as a Medical Research Fellow. In 1980 he was award National Honour by the Nigerian Government post National Youth Service Corps (NYSC) and IFCC bursary award as a young scientist in 1996. He has over 85 publications in peer-review journals. His research interest is in diabetes mellitus and chronic non-communicable diseases. He has trained one PhD and more than 16 medical doctors to become specialists in Chemical Pathology out of which six have become Professors.

Prof. Okesina was the National President of Association of Clinical Chemists of Nigeria 2007 to 2016 and the President of the African Federation of Clinical Chemistry (AFCC) from January 2013 to December 2017. He was appointed Foundation Fellow of the College of Pathology of East Central and South Africa (COPECSA) in 2014. He was once the National Vice President of Islamic Medical Association of Nigeria (IMAN).

Prof. Okesina is a charter member (in 1986) of Ilorin Central Lions, he was Lions District 404 Zone 6 chairperson in 1995/96 and had received many National and International Awards for services to the community. He is happily married with children and 2 grandchildren.



**Regional Federation
Representative - AFCB:
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Prof. **Abderrazek HEDHILI** is Professor of Toxicology at the Faculty of Pharmacy of Monastir Tunisia. He is Head of the Biology & Toxicology Laboratories Centre Mahmoud Yacoub d'Assistance Medicale Urgente (CMYAMU). He is the Chair of the Laboratory of Toxicology & Environment research LR12SP07, Consultant Toxicologist for the Tunisian ministries of Health, Social Affairs and Environment, and for the Tunisian control Agency (ANCSEP). He is also member of the Board of Directors INEAS and EPS Jebel Ouest Hospital for drug addicts, President of the specialized expert committee on Food and Aliments, Member of the National Committee for the Prevention and Combating of Maritime Pollution Accidents, of the Tunisian Committee on Pesticides. Prof Hedhili is Toxicologist Expert for many international organisations such as WHO ICSCs - WHO advisor on drugs abuse; International labour organization (atmospheric and work polluters) and of the Arab Organization of Work (polluters in the work areas). He is an elected member of the French Academy of Pharmacists since September 2016.

Prof Hedhili has been active in the promotion of Clinical Chemistry and Laboratory Medicine throughout the world and in particular in the Arab countries and in Africa. His research and professional activities have sizable impact on Clinical Chemistry in general, and toxicology in particular. He has been designed as member of the International Scientific Board of two IFCC Congresses: Berlin 2011 and Istanbul 2014.

Since 1998 Prof Hedhili activities include the organization of several international (Arab, African and Francophone) and national (15 annual "Journées Nationales de Biologie Clinique", JNBC) conferences, workshops, symposia, and other scientific activities. In addition, he contributed to the organization of the Congresses of the Arab Federation (AFCB) in Morocco (2000), in Tunisia (2004), Syria (2006), in Lebanon (2009), in Jordan and Sudan (2015) and of the 2nd IFCC Conference (Sousse – Tunisia, 2004), and the FIFBCML conferences in Morocco (2008), Tunisia (2010) and Algeria 2019.

Prof Hedhili is member of many International Journals as a scientific board member. He is the author and co-author of 100 published articles, 50 thesis and masters, and he is responsible of the Laboratory of Toxicology & Environment research (50 researchers) and have supervised more than 40 researchers (thesis projects, masters). His research areas mainly focus on: pesticides, mycotoxins, drug abuse, chemical risks, trace elements, drug monitoring, environmental pollutants, residues of licit and illicit drugs

in wastewater, bio and chemical hazards, impact of toxic elements on biological and clinical parameters.

Prof Hedhili has been the General Secretary (1999-2005) and President of the Tunisian Society of Clinical Biology (2005-2011). He served as Secretary, President, Past President and Vice-President of the Arab Federation of Clinical Biology (AFCB) where currently he is President of the Scientific Committee. He was President, Vice-President and member of the Federation Internationale Francophone de Biologie Clinique et de Medicine du Laboratoire, (FIFBCML). He was President of the Tunisian Friendly Pharmacists and General Secretary and Vice-President of Tunisian Pharmacists Council (2011-2016). Prof Hedhili was IFCC Representative of the Tunisian Society (2005-2011), Corresponding Member of the IFCC C-CC, member of the WG eNews and IFCC EB Member (2018-2020).



**Regional Federation
Representative - APFCB:
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Prof **Sunil Sethi** (MBBS (S'pore), M.Med (Int. Med), MRCP(UK), FRCPath, MAACB, PhD) is Senior Consultant and Head of Clinical Chemistry at the Department of Laboratory Medicine at the National University Hospital (NUH), Singapore. He graduated from the National University of Singapore and completed his specialist degree in internal medicine with the Masters of Medicine (Internal Medicine) and the Fellowship of the Royal College of Physicians (UK). He subsequently went on to achieve his PhD in Clinical Biochemistry from the University of Surrey, United Kingdom, with his research work focused on postprandial lipid and lipoprotein metabolism. He is a Fellow of the Royal College of Pathologists (FRCPath) in Chemical Pathology.

As Associate Professor in the Department of Pathology at National University of Singapore, Prof Sethi is zealous in imparting his knowledge and experience to students. Besides his current appointments, he also holds esteemed positions in numerous boards and committees and he is the current President of the Singapore Association of Clinical Biochemists (SACB) and the President of the Asia-Pacific Federation for Clinical Biochemistry and Laboratory Medicine (APFCB).

In addition to his administrative responsibilities in the clinical laboratory, Prof Sethi conducts a regular lipid and metabolic disorder clinic at the National University Hospital, Singapore. Prof Sethi has a particular passion and research interests in laboratory workflow, laboratory automation, laboratory informatics and in clinical biomarker utilization.



**Regional Federation
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Prof. **Ana-Maria ŠIMUNDIĆ**, PhD, EuSpLM, has received her graduate and postgraduate education at the Faculty of Pharmacy and Medical Biochemistry at the Zagreb University where she currently holds a professor position at the department of Medical Biochemistry. Currently, Prof. Šimundić is employed at the Clinical Hospital Sveti Duh in Zagreb, where she holds a position of the Head of the Department of Medical Laboratory Diagnostics.

She was the President of the Croatian Society of Medical Biochemistry and Laboratory Medicine 2012-2018. Until the end of 2017, she has served as the Editor-in-chief of the journal *Biochemia Medica*, published by Croatian society of Medical Biochemistry and Laboratory Medicine. She now holds a Senior Editor position in that Journal.

During her professional career, Prof. Šimundić has served the European Federation of Clinical Chemistry and Laboratory Medicine (EFLM), in various roles over the years; as the Executive Board Secretary (2011-2017), President-Elect (2018-2019) and President of the EFLM (2020-today). She has been chairing the Working group for Preanalytical Phase (WG-PRE) since 2012-2018. Currently she acts as the Expert-Consultant in this group.

She was awarded with the Best Young Scientist award (2000) and Best Research award (2011) by the Croatian Society of Medical Biochemistry and Laboratory Medicine, with the Per Hyltoft Petersen Award (2012) by the Slovak Society of Laboratory Medicine and with the Honorary membership of the Hungarian society for Laboratory medicine (2012). In 2015 she was among the Top 100 Powerlist of the British journal: *The pathologist*.

Prof. Šimundić has authored or co-authored numerous peer reviewed manuscripts. Her research activities focus on quality management and preanalytical phase.



**Regional Federation
Representative - COLABIOCLI:
Dr. Ana María LENA
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Dr **Ana María LENA** (PhD), Clinical Biochemist, Pharmaceutical Chemistry received her PhD degrees from the University of the Republic of Uruguay in 2004 about Coagulation disorders in diabetic patients.

Currently, Dr Lena is Professor of Clinical Analysis at the Faculty of Chemistry of the University of the Republic. In addition, since 2004, she is in charge of the Hematology Course for students in Clinical Biochemistry.

Previously she was Technical Director of CEAHT Laboratory (Center Specialized in Conditions of Hemostasis and Thrombosis) from 2005 up to 2019. She did a fellowship in Liver Transplantation at the Italian Hospital of Buenos Aires Argentina.

From 1997 to 2011 she was Head of the Hematology Service of the Laboratory of the Military Hospital. She was Professor of Biochemistry at Catholic University.

In the period 2018-2019 she was member of the COLABIOCLI Executive Board as General Secretary.

She is author of research papers and publications in the area of Hemostasis and Thrombosis.

She is CLAHT member (Latin American Cooperative Group for Hemostasis and Thrombosis) and Vice President of ICHT (Research and Science in Hemostasis and Thrombosis).

She is member of the Administrative Committee of the Uruguayan Registry of Von Willebrand Disease in Uruguay.



**Regional Federation
Representative - NAFCC :
Dr Stephen HILL**

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Dr. **Stephen HILL**, PhD, FCACB began his career in laboratory medicine as a medical laboratory technologist, and then earned a BSc and PhD in biochemistry from the University of Western Ontario, followed by a post-doctoral fellowship in Clinical Biochemistry at McMaster University in Hamilton Canada. Since 1990, he has been on the faculty of the Department of Pathology and Molecular Medicine at McMaster, currently serving as an Associate Professor.

Dr. Hill has a strong interest in education at all levels; undergraduate science and medicine, graduate, and post-doctoral. As the program director of the post-doctoral training program in Clinical Biochemistry at McMaster, he has overseen the training of more than twenty clinical biochemistry fellows and residents over 12 years. He has been the course coordinator for an undergraduate course in clinical biochemistry for biochemistry and life science students for 20 years. He is a tutor in the problem-based undergraduate medicine program.

Dr. Hill has served a number of professional representative roles in Canada, including treasurer and president of the Ontario Society of Clinical Chemists, board chair of the Canadian Academy of Clinical Biochemistry, and secretary and president of the Canadian Society of Clinical Chemists.

Dr. Hill's research interests include novel biomarkers of Cystic Fibrosis and understanding the sweat metabolome, as well as evidence-based and effective use of clinical chemistry testing, especially in the pediatric setting, and biomarkers of cardiac injury.

He is pleased to serve as the NAFCC representative on the IFCC board; to promote the views and interests of the NAFCC within the IFCC, and equally important, to promote the views and Interests of the IFCC in North America.

Stephen is married and lives in Hamilton. He is a sailor and skier. He is an active volunteer with the Able Sail program at the Royal Hamilton Yacht Club, a program that teaches persons with disabilities to sail and to enjoy freedom of sailing.

1.4. CLINICAL CHEMISTRY AND LABORATORY MEDICINE: ROLE IN HEALTHCARE

Clinical Chemistry and Laboratory Medicine is the application of chemical, molecular and cellular concepts and techniques to the understanding and the evaluation of human health and disease. At the core of the discipline is the provision of results of measurements and observations, together with interpretation and informed clinical advice relevant to:

- The maintenance of health
- The cause of disease
- The diagnosis of disease
- Predicting and monitoring the response to therapy
- Follow up investigations

The discipline is committed to deepening the understanding of health and disease through fundamental and applied research. The use of chemical techniques to examine biological fluids may be traced back more than 300 years. However, it is only in the past 100 years that reliable quantitative assays have become established for constituents in blood, urine and other biological fluids/tissues. It was in the late 1940s that the first scientific societies and the first journals bearing the title Clinical Chemistry were established. The International Federation of Clinical Chemistry (IFCC) was established in 1955.

In the past 60 years there has been a rapid expansion in Clinical Chemistry and in other disciplines of Laboratory Medicine including Haematology, Transfusion Medicine, Immunology, Microbiology, Toxicology and Genetics. These disciplines often use similar technology and may be used in combination to assist the investigation and management of patients. As a result, the term Laboratory Medicine is becoming more widely adopted, although its exact definition varies between countries. In recognition of this development the Federation changed its name in 1996 to the International Federation of Clinical Chemistry and Laboratory Medicine, although it maintained the abbreviation IFCC. Today it is widely accepted that as a significant number of clinical decisions in healthcare are informed by Laboratory Medicine.

Advances in Clinical Chemistry and Laboratory Medicine have occurred as a result of improved knowledge and understanding of the pure sciences (mathematics, physics, chemistry); related medical sciences (biochemistry, physiology, genetics, cellular and molecular biology); and technology (instrumentation, automation, information technology, nanotechnology). As a result, modern medical laboratories incorporate highly sophisticated equipment and methodologies. High throughput analytical platforms capable of performing tens of thousands of tests per day sit alongside state-of-the-art mass spectrometers, cell counters and micro-array systems. Consequently, modern medical laboratories require highly trained and skilled medical practitioners, scientists and technologists, including specialists in analysis, clinical applications, data analysis, information management, proteomics and bioinformatics.

Furthermore, the advances in technology have enabled increasing amounts of Clinical Chemistry and Laboratory Medicine to be delivered outside medical laboratories, closer to the patient. Point of care testing now occurs in hospital wards, clinics, doctor's offices, community pharmacies, places of work and in the home. Whilst point of care testing is designed for use by non-laboratory specialists, considerable education and support is required to ensure high quality results and an understanding of their clinical significance. The diversification of Clinical Chemistry and Laboratory Medicine has created a natural and positive partnership between Laboratory Medicine specialists in clinical laboratories

and the in-vitro diagnostics industry. Typically, original science in research laboratories often leads companies to develop new diagnostic products that are translated into service and validated in medical laboratories

In the modern era of Clinical Chemistry and Laboratory Medicine results are not enough. The quality of results has to be assured. Quality assurance is an all-embracing agenda that includes:

- Internal quality control
- External quality assessment
- Quality management and laboratory accreditation
- International method standardisation to the highest level of traceability
- Harmonisation of nomenclature, properties and units

Quality results are still not the finished product because they need to be converted into knowledge that is then used to shorten patient pathways and lead to improved patient outcomes. Knowledge management includes:

- The application of evidence-based medicine
- The development of best practice based clinical guidelines
- Participation of multidisciplinary teams
- A patient centric focus
- Translational research
- The development of personalised medicine
- Promoting the contribution of Clinical Chemistry and Laboratory Medicine to healthcare

As the leading worldwide professional organisation for Clinical Chemistry and Laboratory Medicine, the IFCC has a responsibility to be at the forefront of international scientific and clinical development whilst providing education and management support to its members to improve the quality of their service, and to convert that quality into transferable and clinically valuable knowledge. The following paragraphs on the IFCC Mission, Strategic Plan and Strategic Objectives explain how the IFCC discharges that responsibility.

1.5. MISSION STATEMENT AND AIMS OF IFCC

Mission statement

Our mission is to be the leading organisation in the field of Clinical Chemistry and Laboratory Medicine worldwide.

Aims of IFCC

“Through leadership and innovation in science and education we will strive to enhance the scientific level and the quality of diagnosis and therapy for patients throughout the world. We will build on the professionalism of our members to provide quality services to patients. We will aim to communicate effectively with our members, other healthcare providers and the public to ensure knowledge of our excellent scientific and educational achievements. We will focus always on scientific standards, publications, education, and communication. We will communicate effectively through a variety of electronic media. We will hold outstanding congresses and conferences to bring the efforts of the IFCC to the global community”.

The specific aims of the IFCC are:

- To complement and enhance the activities of its members
- To transcend the boundaries of a single nation or a single corporation, or a geographical, cultural or linguistic group of nations in developing the field of Clinical Chemistry and Laboratory Medicine
- To provide a forum for standardisation, in the broadest sense, at a high level
- To disseminate information on “best practice” at various levels of technology and of economic development
- To promote a vision of Clinical Chemistry and Laboratory Medicine that extends beyond traditional narrow perceptions of the field.

The IFCC achieves these aims by:

- Publishing information and guidelines relating to the education of clinical chemists and laboratory physicians
- Defining principles and publishing recommendations for the standardisation of analytical procedures and for the interpretation of analytical results
- Promoting meetings of clinical chemists and laboratory scientists through congresses, symposia and workshops in Clinical Chemistry and Laboratory Medicine, and by encouraging dialogues with clinicians on matters of common interest.

The IFCC has a major responsibility for promoting and supporting the development of Clinical Chemistry and Laboratory Medicine on an international basis. In fulfilling this responsibility, it cooperates with many other international, regional and national organisations, particularly in the fields of education and standardisation. The IFCC also assists and encourages the creation and organisation of national societies of Clinical Chemistry and Laboratory Medicine in countries where these do not yet exist and establishes and maintains contact with individual clinical scientists in parts of the world where there is no professional body specifically concerned with Clinical Chemistry and Laboratory Medicine. The IFCC is a non-political organisation that believes in high ethical standards, equal opportunities, and freedom of movement for laboratory professionals around the nations of the world. In January 2016 the IFCC convened a strategic workshop to re-examine and update its Mission Statement and Aims. This workshop resulted in a new Vision Statement and a series of eight Areas of Expertise to support the Vision Statement. These are listed below:

Vision Statement

'We advance excellence in laboratory medicine for better healthcare worldwide'.

Areas of Expertise

The eight areas of expertise to support the IFCC Vision Statement are:

The eight areas of expertise to support the IFCC Vision Statement are:

- Applying science to promote harmonisation and innovation in laboratory medicine by drawing on worldwide expertise
- Developing and delivering educational programmes globally to foster expert laboratory medicine professionals
- Using evidence-based processes to define and promote the value of laboratory medicine in healthcare worldwide
- Being responsive to the unique and regional needs of our Members
- Being open-minded and aware of innovations and new developments in the science of laboratory medicine
- Striving for efficiency and effectiveness within our organisational structure
- Being transparent and responsible in our financial affairs
- Being mindful of the international ethical codes pertaining to our activities.

1.6. OVERALL STRATEGIC PLAN FOR IFCC

The original IFCC strategic plan was conceived and refined during the period 1990-1994 by the Executive Board and reviewed by National Societies and Corporate Members. This strategic plan was subsequently revisited and revised by successive Executive Boards. The ongoing strategic plan is intended to achieve a number of principal objectives, with the priorities and tactical implementation being guided by the IFCC Membership. These internal and external changes are all intended to maintain the IFCC as a valid and credible resource of expertise for the improvement of patient care through laboratory medicine, and to fulfil our vision: "We advance excellence in laboratory medicine for better healthcare worldwide".

IFCC Strategic Plan 2020-2023

The IFCC President, Prof. Khosrow Adeli, with the support of the IFCC Executive Board has prepared a strategic plan for the period 2020-2023, to continue the IFCC's mission of "Advancing excellence in laboratory medicine for better healthcare worldwide".

In partnership with all IFCC Divisions and functional units, over the next years IFCC will strive to enhance its leadership position in the field of laboratory medicine by:

- **Directly Impacting Healthcare and Patient Outcomes** by working with developing countries around the world to advance programs for **Global Newborn Screening** in collaboration with WHO, Gates Foundation, industry, others; and by providing the necessary scientific and operational training and support on-site for labs in developing countries.
- **Directly Contribute to Global Lab Quality** by developing an **International IFCC Internal Quality Control and External Quality Assurance program** and innovative quality improvement strategies, to disseminate the concept of total quality management and quality systems approach to clinical laboratories and national societies, particularly in developing countries.
- **Directly Contribute to Global Lab Quality – Develop a global consortium on Reference Intervals**, for adult, paediatric and geriatric populations. The initiative

would involve expertise and data from expert groups in this area, from around the world. The IFCC would become the repository for collective data from around the world, facilitating harmonisation as a long-term goal.

- **Becoming the largest provider of free Distance Learning/eLearning in the field of laboratory medicine worldwide.** Globally, focusing on developing countries and young scientists, students and trainees, through the new eAcademy platform and its vast network of experts, the IFCC can develop the most comprehensive database of eLearning programs to support education by its member societies.
- **Continuing to promote the Value of Laboratory Medicine** by gathering the evidence to demonstrate the value of lab medicine in clinical decision making and healthcare delivery and communicating this to the public and all stakeholders. A key mandate of this initiative will be to develop the value of Lab Medicine, by collaborating and encouraging research, particularly in areas like critical care, endocrinology, cardiology, GI/Nutrition, etc. The TF could help centres in setting up studies to properly collect such data (common study protocols and formats). The evidence gathered from around the world can then be used to promote the critical role of laboratory medicine in healthcare to key stakeholders including governments, administrators and other healthcare workers as well as the public at large.
- **Encouraging and supporting a culture of innovation** in the IFCC community and communicate technological and process innovations to laboratory scientists and physicians globally. In association with regional federations, member societies, young scientists, and corporate members, ensure that IFCC is a driver of technological innovations such as artificial intelligence and machine learning, and their application in laboratory medicine.
- **Enhancing functional unit productivity by increasing the use of video conferencing across all units within the IFCC organisation**, i.e., monthly virtual meetings, in addition to one face to face meeting is recommended.



1.7. STRATEGIC OBJECTIVES 2021-2023

The Executive Board for 2021-2023 has identified the following strategic objectives for its term of office. They are in accord with the overall IFCC strategic plan and the principal objectives outlined in Section 1.6. They are intended to be in addition to the ongoing work of Divisions and the Regional Federations.

Introduction

This document concentrates on EB priorities and it is intended to complement the planning and actions of IFCC Divisions, Committees, Working Groups and Task Forces. Some of the identified priorities may overlap with the work of Divisions and Regional Federations, and dialogue is required to ensure a co-ordinated approach.

The document identifies 24 strategic actions which have been classified into the following four broad areas:

- A. Supporting our Membership
- B. Broadening our Horizons
- C. Improving the Quality of Laboratory Medicine
- D. Improving the effectiveness of IFCC

Each strategic action will be assigned a timeline over the period February 2021 – December 2023. Each strategic action will also be assigned to a member of EB who will lead that particular initiative. Progress with, and review of the strategic development plan will be an integral part of all future EB meetings during 2021-2023. It is intended that the plan will be modified in the light of changing circumstances.

Area A: Supporting our Membership

Number	Specific Strategic Actions
1	Conduct an annual survey of national society members as well as an annual survey of all corporate members, to identify the ways in which IFCC can best support its members.
2	Provide more funding for Visiting Lecturer Program (VLP) and Professional Exchange Program (PEP).
3	The EB will meet at least annually with all Division Chairs and TFs.
4	Establish a Task Force on Global eLearning/eAcademy to: a) Develop and present a series of live and recorded webinars to meet the needs of Members. b) Improve/enhance the e-academy as the platform to support IFCC educational materials.
5	Hold Annual Townhalls with all regional federations, national societies and corporate members (separate regional annual townhalls with the Americas, Europe/Middle East/North Africa/Africa, and Asia-Pacific, and a separate townhall with corporate members). Organise at least one opportunity each year for the Executive Board to meet with the Presidents of each of the IFCC Regional Federations to identify opportunities for collaboration (virtually or in person).
6	a) Improve communication with Members in all Regions. b) Support at least one major new project in each Region in three-year term. c) Increase funding to Federations except EFLM and NAFCC.
7	Devise and introduce a strategy to increase the attractiveness of IFCC to Corporate members via the TF-CM.
8	Devise and introduce a strategy to encourage participation of countries in Council meetings.
9	Increase the presence of IFCC Officers at meetings granted auspices / national congresses, including virtual meetings, and facilitate IFCC booths in both physical and virtual events.
10	Improve the visibility of IFCC in National Societies by encouraging them to include a short IFCC news section in their national newsletter or website.

11	Produce and publish an e-booklet to encourage young scientists to undertake research.
12	Consolidate the mentoring programme as a Special Project and promote its gradual expansion.
13	Initiate a new conference schedule with a large event annually, alternating between the EuroMedLab in Europe and the WorldLab in other regions.

Area B: Broadening Our Horizons

Number	Strategic Action
14	Invite organisations from outside laboratory medicine to contribute to IFCC meetings to promote better interaction with healthcare professionals.
15	Continue to support young scientists participating in IFCC Committees and Working Groups.

Area C: Improving the Quality of Laboratory Medicine

Number	Strategic Action
16	Establish a Task Force on Global Lab Quality.
17	Establish a Task Force on Global Newborn Screening.
18	Establish a Task Force on Global Reference Intervals.
19	Establish a Task Force on Outcome Studies in Laboratory Medicine.
20	Strengthen the links and collaboration with the World Health Organization (WHO).
21	Encourage IFCC involvement/leadership in chronic disease management and AI and informatics.

Area D: Improving the Effectiveness of IFCC

Number	Strategic Action
22	Review IFCC finances and improve financial management of the organisation using an international accounting firm and appropriate/transparent auditing practices for all income and expenses.
23	Encourage more regular meetings of all IFCC Functional Groups through virtual Zoom meetings.
24	Increase staff resources in the IFCC Office to support activities of existing and new functional units.

1.8. A BRIEF HISTORY OF THE IFCC

1.8.1. Introduction

In 1952, Professor E J King of the Royal Postgraduate Medical School in London suggested that the then emerging national societies of clinical chemistry should organise into an international body under the auspices of the International Union of Pure and Applied Chemistry (IUPAC). This was accomplished on July 24, 1952, at the Second International Congress of Biochemistry in Paris, by the formation of the International Association of Clinical Biochemists. A year later, in Stockholm, it was resolved to change the name to the International Federation of Clinical Chemistry, and this was formally adopted at the next meeting which took place in 1955 in Brussels. The initial objectives of the Federation were to “advance knowledge and promote the interests of biochemistry in its clinical (medical) aspects”. In the early years, the IFCC was closely associated with the IUPAC Commission (later Section) of Clinical Chemistry, and initially, the Committee of IFCC comprised the members of the IUPAC Commission. It was recognised, however that the IFCC should become independent, but would retain its contacts with IUPAC through affiliation as an Associate Member. This was accomplished in 1967, when the two organisations were formally separated. With time, the organisational structure of the IFCC developed so that its efforts in science, education, and publishing, as well as its financial affairs, and congress activities were dealt with by Divisions or Committees and, where appropriate, supported by other Committees and groups responsible for specific tasks. The IFCC is now a Federation of 94 Full Member national societies of Clinical Chemistry and Laboratory Medicine and 17 Affiliate Members, representing about 45,000 individual clinical chemists, laboratory scientists, and laboratory physicians plus 50 Corporate Members covering the major areas of clinical laboratory activities. In 2002 John Lines and Jacques Heeren published “IFCC Celebrating 50 Years”. This book is a more comprehensive history of the Federation and is available from the IFCC office. In 2020 Mathias Müller and Bernard Gouget published the IFCC Milestones Golden Achievements (2003- 2020). This edition provides an update on the evolution of the IFCC since the beginning of the 21st century and is available from the IFCC website.

1.8.2. IFCC Presidents

The history of the IFCC must include reference to the eminent clinical chemists who have served as President and guided its development. Professor E J King conceived the idea of the Federation, brought it into being, and guided it through its early years to become the group to which all national societies of Clinical Chemistry could look for guidance. His untimely death created a vacuum which Professor Monroe Freeman ably filled for three years.

He was followed by Professor J E Courtois until 1967, during which time the statutes and bylaws, upon which the whole working of IFCC is based, were created. During the seven to eight years of the presidency of Professor Martin Rubin, the IFCC became accepted as a major international organisation and was recognised as a non-governmental organisation in official relations with the World Health Organisation (WHO). It became a member of the Council of the International Organisations of Medical Sciences and established its own regular Newsletter, developed education programmes in South America; formed Expert Panels that became authoritative groups in their respective fields, and established constructive relationships with industry.

In 1976, Dr Jörg Frei was elected President after an eight-year period as Secretary.

Dr Rene Dybkaer followed him in 1979 after six years as Vice-President. During these years the collaboration with industry was formalised by the creation of Corporate Membership, IFCC Archives were established, Congress Guidelines were formulated, an IFCC Travelling Lectureship implemented, a major educational programme conducted in Thailand, and the IFCC Distinguished International Services Award established in addition to the earlier Distinguished Clinical Chemist Award. As a new concept, a General Conference of IFCC Officers, Divisions and Committees, together with Associate Members, was launched in Denmark in 1982. Finally, a Task Force prepared new Articles for the Federation which were approved by Council in 1984.

Dr Donald Young became President in 1985, after a three-year term as Vice-President. During his six years as President, Dr Young reorganised the committee structure of the IFCC. The previous Expert Panels were redefined as Committees and an integrated structure was formed to allow better communications and delegation of responsibility and activity. Dr Young initiated a further review and modification of the IFCC Statutes which was completed in 1993. During Dr Young's tenure IFCC initiated the publication of its own journal - Journal of the International Federation of Clinical Chemistry. A broader interpretation of clinical chemistry to include other areas of laboratory medicine was developed. Formal associations were initiated with clinical chemistry organisations in Latin America and the Asian and Pacific region.

Professor G. Siest, who was President from 1991 to 1996, worked with the Board and Members to develop a Strategic Plan which would guide the organisation into the 21st Century. This involved the identification of six key Strategic issues, relating to: Scientific Credibility, Linkage of Clinical Chemistry to Improved Patient Care, Communication, Promotion of IFCC Products and Services, People and Succession, and Finance. New agreements with the European region (FESCC) and the Latin American Region (COLABIOCLI) were signed. The strategic plan was endorsed by the IFCC Council in 1996.

From 1997-99 the President was Professor Matthew McQueen who was previously a member of the Scientific Committee from 1982-87, Treasurer from 1989-90 and Vice President 1991-96. During his Term the Executive Board translated the Strategic Plan into specific actions. These included increasing scientific activity in the areas of standardisation and reference materials, and improved scientific co-operation with other international laboratory professional organisations. The Education and Management Division expanded its role in the pre-analytical and post-analytical phases, while the Communication and Publications Division restructured to meet the challenges of electronic publication. One highlight was the very important name change to the International Federation of Clinical Chemistry and Laboratory Medicine, highlighting the clinical relevance and importance of our profession. The Statutes of the Federation were modified to implement "term limits" for members of the Executive Board. Representatives from the Corporate members were formally included in the structure of each Division. This Executive Board successfully concluded discussions with the World Association of Societies of Pathology and Laboratory Medicine producing a joint policy statement on "Principles of Clinical Laboratory Accreditation". This clearly stated that the Laboratory could be directed by Scientists or Physicians, with the appropriate initial qualifications and specialised post-graduate professional education and training in clinical laboratory work.

Prof. Mathias M. Müller served as President for the period 2000 - 2005, having previously served the Federation as Secretary, Vice-President, and Vice-Chair and Chair of the

Scientific Division. Under his guidance the Federation continued to stress high quality scientific endeavour as the backbone of the Federation. Since 2000, the Executive Board has emphasised the interdisciplinary character of our discipline and has focused on clinically relevant topics. In this context, the establishment of reference systems for glycated haemoglobin and enzyme activity measurements as well as a global campaign for monitoring diabetes mellitus were initiated. With the growing complexity of IFCC projects, the requirement for an intellectual property policy became evident and was developed. A working relationship with the National Committee for Clinical Laboratory Standards/NCCLS (now known as the Clinical and Laboratory Standards Institute/CLSI) was formalised and joint NCCLS/IFCC projects started. Standardisation on high metrological levels has always been a major undertaking and has contributed to the credibility of the IFCC. As a consequence of this policy, collaboration with the Bureau International des Poids et Mesures (BIPM), the National Institute of Standards and Technology (NIST), the Institute of Reference Materials and Measurements (IRMM), European, American and Japanese IVD Associations, and the International Laboratory Accreditation Cooperation (ILAC) were established for the implementation of traceability in Laboratory Medicine. New awards for significant contributions in molecular diagnostics, and in education and inpatient care were created. With the opening of the IFCC Office in Milan the IFCC website was restructured, becoming the main communication vehicle between the Federation and the membership.

Professor Jocelyn Hicks served as President from 2005 to 2008. She also served the Federation as Chair of the Publications Division and as Treasurer. She continued to encourage the scientific excellence for which IFCC is justifiably proud. She assembled a group of clinicians from the key diabetes bodies to develop a consensus statement regarding the use of the new standard for glycated haemoglobin. As President she worked to enhance the quality of laboratory testing worldwide with the able assistance of the Education and Management Division. Under her direction the Communications and Publications Division took public relations and communications to a new level. They, for example, published a PR brochure in many languages. She considered assistance to the developing country Members to be paramount, as it is the patient who benefits. Under her leadership the Visiting Lecturer Programme was greatly expanded with a substantial grant from Abbott Laboratories. Travel scholarships to attend major IFCC Congresses were introduced with a generous grant from Roche Diagnostics GmbH. These were awarded on a competitive basis to young scientists from developing countries. Siemens Healthcare Solutions generously assisted in establishing a distance e-learning programme for all members, but with emphasis on topics to assist those in developing countries. A new conference that links the clinician with the clinical laboratory was started with a substantial grant from Ortho Clinical Diagnostics. The first of these was held in Birmingham in the UK in 2008. The theme was Cardiac Biomarkers. Two new awards were introduced, one in Laboratory Medicine and Patient Care sponsored by Ortho Clinical Diagnostics and one on outstanding contributions to Standardization sponsored by The National Institute on Standards and Technology and the Clinical Laboratory Standards Institute. Professor Hicks developed a new programme for National and Corporate Representatives to be involved actively in the General Conference in 2008. This Conference was organised with the assistance of The Congress and Conference Committee, the Turkish Association and the IFCC Office. A successful International Congress of Clinical Chemistry and Laboratory Medicine was held in Brazil in 2008 with the able assistance of the Brazilian Association. The number of full Members grew from 72 to 83 during this period. Professor Hicks visited many of our Member countries. The number of Corporate Members also increased despite many mergers. All of these activities were made possible with the assistance of the

Executive Board, the Divisions, the Committees, Working Groups and the IFCC office.

Dr Graham Beastall from the UK served as President from 2009-2014, during which time the number of Full Members grew to 89 and the number of Corporate Members grew to 52. Dr Beastall increased transparency and accountability of the Executive Board to the Members. He oversaw changes to the composition of the Executive Board; the introduction of electronic voting; and the introduction of differential membership fees. Devolution of responsibility to the Regional Federations was a key programme, which greatly increased the number of individuals who are actively involved in the 'family of IFCC'. The IFCC WorldLab congresses in Berlin (2011) and Istanbul (2014) were hugely successful and the General Conferences held in Corfu (2009) and Kuala Lumpur (2012) played an important role in the IFCC understanding the needs and priorities of its Members. IFCC communications and publications improved significantly during this period. A much-improved website was introduced and the quality of IFCC News and the electronic journal of IFCC both advanced. Distance learning programmes were developed and an e-Academy was conceived and developed. The Scientific Division enhanced its international reputation, especially in the area of method standardisation. The Education and Management Division increased its educational support to developing countries through a range of programmes, including the Visiting Lecturer Programme, educational scholarships and a new mentorship scheme. Dr Beastall encouraged greater focus on the clinical importance and clinical effectiveness of laboratory medicine. New cross-Divisional Task Forces were created to collaborate with international clinical organisations. Adding value to high quality laboratory medicine services through the application of 'SCIENCE' was Dr Beastall's flagship programme.

Professor Maurizio Ferrari from Italy, having previously served the Federation as Chair of Committee on Clinical Molecular Biology Curriculum, member of IFCC Task Force on Pharmacogenetics, member of the Education and Management Division of IFCC, and Chair of the Education and Management Division, was President from 2015- 2017 during a period of change and development for the profession worldwide arising from growing recognition of the importance of laboratory medicine to quality healthcare. Professor Ferrari facilitated a formal review and SWOT analysis to ensure that IFCC could position itself to respond to this changing global scene with the result that IFCC adopted a new Vision Statement, "We advance excellence in laboratory medicine for better healthcare worldwide", and implemented a series of strategic aims and a detailed action plan. During his term in the Executive Board saw its first change in structure with the President Elect (Professor Howard Morris) joining the Board one year ahead of becoming President. The North American Federation of Clinical Chemistry and Laboratory Medicine was formed (thanks also to the efforts of President Graham Beastall), and the election of six Regional Federation representatives took place during this period to create a more dynamic and representative Executive Board. The activities of the Scientific Division, Education and Management Division and Communications and Publications Division improved significantly during this period. Further influence from Professor Ferrari saw the creation of the new Emerging Technology Division, which will be operational from 2018, and the consolidation of most of the Task Forces into the Divisional structure. Professor Ferrari made 'meeting IFCC Members' a priority and he was in great demand as an expert lecturer on molecular diagnostics and as a source of advice on the future of the profession. Moreover, he considered paramount to support the developing countries. Professor Ferrari presided the EuroMedLab in Paris 2015, a successful IFCC General Conference in Madrid in 2016, and the first IFCC WorldLab meeting in Africa, which was held in Durban in 2017. The number of Full Members increased to 93 and there was an encouraging rise in the number of Affiliate Members to 13 during this period.

Prof Howard Morris, from Australia, became President in 2018, the first person outside of the Europe or North America to hold this position. He previously served as IFCC Vice President (2012-2014), Secretary of the Scientific Division of the IFCC (2003-2008), Chair of the IFCC-International Osteoporosis Foundation Joint Working Group on Standardization of Bone Turnover Markers (2012-2017), and as a member of the IFCC task forces on the Global Campaign on Diabetes Mellitus (2003-2008) and International Clinical Liaison (2009-2011). Sadly, Prof Morris passed away suddenly on April 18, 2019, while serving the IFCC. Prof Morris had an ambitious and important strategic plan to continue the medical scientific excellence of the IFCC, enhance global educational efforts and relationships with other medical organisations, and provide greater recognition of the value of laboratory medicine, and it was a great loss that he was not able to see his vision for the IFCC realized. With Prof Morris's passing, Prof Maurizio Ferrari assumed the role of President and steered the IFCC through those difficult times until Prof Khosrow Adeli, having been elected as President-Elect, assumed the presidency early, in 2020.

1.8.3. IFCC Office

As the scope of the Federation's activities has expanded, so has the requirement for the exchange of information and documentation from the various activities taking place. As with most other professional groups, the initial secretarial functions were provided by the individual officers and scientists within the Federation. A considerable debt is owed to these individuals and their employing organisations. However, it was obvious to the Executive Board that for the Federation to continue its development, a Secretariat was required. The Federation was fortunate originally to be supported by Radiometer A/S of Copenhagen, which agreed to provide office space and secretarial support. This facility was generously placed at the disposal of the Executive Board and became known in 1983 as the IFCC Technical Secretariat. During this period, the Federation was fortunate in obtaining the services of Mrs Maj-Britt Petersen, who provided invaluable support, in particular for the Scientific Division. In order to facilitate the appropriate distribution of documents, the Technical Secretariat also kept a master file of names and addresses of all those who played a part in the Federation's affairs. During 1988-1990 the Executive Board devoted considerable effort to determine the role and structure of a central office. In 1990 a new Technical Secretariat was established in Nancy, France with the assistance of Prof Gerard Siest. The opening of this office was a major event for the IFCC as for the first time the IFCC employed its own staff. The Technical Secretariat was transferred into the hands of Mrs Chantal Thirion and remained in Nancy until 2001. In 2001 when additional professional administrative services were needed, the Office was transferred to Milan, Italy where it shares resources with a major Professional Conference Organiser. The IFCC Office currently employs four staff members, Mrs Paola Bramati, Mrs Silvia Cardinale, Mrs Silvia Colli Lanzi and Ms Smeralda Skenderaj.

1.8.4. External Links

The IFCC has maintained its relations with WHO. It has expanded its support of regional organisations and regular regional congresses that are held in Europe, in the Arab Region, in the Asian and Pacific Region, in the Latin American Region and in Africa. IFCC has signed Memoranda of Understanding with all its Regional Federations. The IFCC has accepted the ICSU Principles of free circulation of scientists and has assured the attendance of visiting scientist at all meetings. The interests of IFCC continue to expand. It has addressed the policy of patenting key products for analytical methods and continues to work collaboratively with many international organisations to sponsor major educational programmes. The IFCC is also working with a number of other International

Organisations such as IRMM, NIST, CLSI and BIPM in developing new standards and in the area of standardisation/harmonisation of methods. The IFCC continues to be very influential in defining and reviewing appropriate terminology in Laboratory Medicine and other fields of chemistry. In addition, the management structure of the Federation has been reorganised continuously to enable it to respond effectively to contemporary issues. The IFCC has signed Memoranda of Understanding agreements with ILAC (International Laboratory Accreditation Cooperation), HIMSS (Healthcare Information and Management Systems Society), ISTH (International Society on Thrombosis and Haemostasis) and WASPaLM to formalise and improve collaboration.

1.8.5. Membership of IFCC Executive Boards

President

E.J. King (UK) 1952 - 1960	MJ. Mc Queen (CA) 1997 - 1999
ME. Freeman (US) 1960 - 1963	MM. Müller (AT) 2000 - 2005
JE. Courtois (FR) 1963 - 1967	JMB. Hicks (US) 2006 - 2008
M. Rubin (US) 1967 - 1975	GH. Beasall (UK) 2009 - 2014
J. Frei (CH) 1976 - 1978	M. Ferrari (IT) 2015 - 2017
R. Dybkaer (DK) 1979 - 1984	H. Morris (AU) 2018 - 2019 04
DS. Young (US) 1985 - 1990	M. Ferrari (IT) 2019 05- 2020 04
G. Siest (FR) 1991 - 1996	K. Adeli (CA) 2020 05 - 2023

Vice President

E. Werle (DE) 1966 - 1972	MM. Müller (AT) 1997 - 1999
R. Dybkaer (DK) 1972 - 1978	CA. Burtis (US) 2000 - 2005
RG. Edwards (AU) 1979 - 1981	V. Palicka (CZ) 2006 - 2008
DS. Young (US) 1982 - 1984	CWK. Lam (HK) 2009 - 2011
A. Kallner (SE) 1985 - 1990	H. Morris (AU) 2012 - 2014
MJ. Mc Queen (CA) 1991 - 1996	

Secretary

IDP. Wootton (UK) 1952 - 1958	R. Vihko (FI) 1988 - 1990
ME. Freeman (US) 1959 - 1960	P. Garcia Webb (AU) 1991 - 1993
B. Josephson (SE) 1960 - 1963	O. Zinder (IL) 1993 - 1996
MC. Sanz (CH) 1963 - 1967	J. Whitfield (AU) 1997 - 1999
J. Frei (CH) 1967 - 1975	R. Bais (AU) 2000 - 2005
PMG. Broughton (UK) 1976 - 1978	PH. Laitinen (FI) 2006 - 2011
A. Kallner (SE) 1979 - 1981	S. Bernardini (IT) 2012 - 2017
JG. Hill (CA) 1982 - 1984	DW. Kinniburgh (CA) 2018 - 2023
MM. Müller (AT) 1985 - 1987	

Assistant Secretary

G. Siest (FR) 1972 - 1975
A. Kallner (SE) 1976 - 1978

President Elect

H. Morris (AU) 2017
K. Adeli (CA) 2020

Treasurer

L. Hartmann (FR) 1966 - 1972	A. Kallner (SE) 1982 - 1984
PMG. Broughton (UK) 1972 - 1975	ML. Castillo de Sanchez (MX) 1985 - 1987
RG. Edwards (AU) 1976 - 1978	MJ. Mc Queen (CA) 1988 - 1990
JG. Hill (CA) 1979 - 1981	NC. Den Boer (NL) 1991 - 1996

P. Mocarelli (IT) 1997 - 2002
JMB. Hicks (US) 2003 - 2005
G. Shannan (SY) 2006 - 2011

B. Gouget (FR) 2012 - 2014
T. Ozben (TR) 2015 - 2020
A Haliassos (GR) 2021 -2023

Members of Executive Board

A. Sobel (US) 1952 - 1954
P. Fleury (FR) 1952 - 1954
B. Josephson (SE) 1952 - 1960
JCM. Verschure (NL) 1954 - 1959
WM. Sperry (US) 1955 - 1960
K. Hinsberg (DE) 1958 - 1963
JE. Courtois (FR) 1958 - 1963
MC. Sanz (CH) 1958 - 1963
NF. Maclagan (UK) 1960 - 1967
VN. Orekhovich (SU) 1960 - 1967
SH. Jackson (CA) 1960 - 1967
M. Rubin (US) 1963 - 1967
R. Ruyseen (BE) 1963 - 1967
J. de Wael (NL) 1966 - 1967
I. Nagy (HU) 1980 - 1987
N. Montalbetti (IT) 1981 - 1985
FW. Sunderman Jr (US) 1981 - 1985
H. Wishinsky (US) 1985 - 1987
SS. Brown (UK) 1985 - 1990
J. Jaervisalo (FI) 1985 - 1990
D. Scheuch (DE) 1985 - 1990
I-K. Tan (SG) 1985 - 1990
F. Dati (DE) 1988 - 1993
N. Montalbetti (IT) 1990 - 1992
HP. Lehmann (US) 1990 - 1994

N. de Cediél (CO) 1991 - 1993
O. Zinder (IL) 1991 - 1994
JB. Whitfield (AU) 1994 - 1999
H. Wetzel (DE) 1994 - 1999
TD. Geary (AU) 1994 - 1999
P. Mocarelli (IT) 1994 - 1999
A. Kallner (SE) 1994 - 1999
L. Muszbek (HU) 1997 - 1999
RI. Sierra Amor (MX) 1997 - 2002
W. Hölzel (DE) 2000 - 2002
CWK. Lam (HK) 2000 - 2005
V. Palicka (CZ) 2003 - 2005
H Wetzel (DE) 2003 - 2005
D. Mazziotta (AR) 2003 - 2008
N. Madry (DE) 2006 - 2008
M. Thomas (UK) 2006 - 2008
JB. Lopez (MY) 2006 - 2011
B Gouget (FR) 2009 - 2011
T. Brinkmann (DE) 2009 - 2014
U. Tuma (BR) 2009 - 2014
L. Kricka (US) 2012 - 2014
V. Steenkamp (SA) 2012 - 2017
R. Hinzmann (DE) 2015 - 2017
D. Mazziotta (AR) 2015 - 2017
RI. Sierra-Amor (MX) 2015 - 2017

Corporate Representatives

H. Wetzel (DE) 1994 - 1999
W. Hölzel (DE) 2000 - 2002
H. Wetzel (DE) 2003 - 2005
N. Madry (DE) 2006 - 2008

T. Brinkmann (DE) 2009 - 2014
R. Hinzmann (DE) 2015 - 2020
J. Passarelli (US) 2021 - 2023

IFCC Regional Federation Representatives at Executive Board

African Federation of Clinical Chemistry (AFCC)

AB Okesina (NG) 2018 - 2023

Arab Federation of Clinical Biology (AFCB)

A. Hedhili (TU) 2018 - 2023

Asia-Pacific Federation for Clinical Biochemistry and Laboratory Medicine (APFCB)

S. Sethi (SG) 2018 - 2023

European Federation of Clinical Chemistry and Laboratory Medicine (EFLM)

S. Sandberg (NW) 2018 - 2023
AM Simundic (HR) 2021 - 2023

Latin-American Confederation of Clinical Biochemistry (COLABIOCLI)

RI Sierra-Amor (MX) 2018 – 2023

AM Lena (UY) 2021 - 2023

North American Federation of Clinical Chemistry and Laboratory Medicine (NAFCC)

D. Kinniburgh (CA) 2015-2018

A. Gronowski (US) 2018 – 2020

S. Hill (CA) 2021 – 2023

