

EFMI

European Federation for Medical Informatics Association

IMIA VP EFMI Region: Lăcrămioara Stoicu-Tivadar, 2020 – 2022

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President Summary

This year marks the 45th anniversary of the European Federation for Medical Association (EFMI) and was recognized in MIE2021, run virtually along with the 200 years of the Hellenic revolution that led to the establishment of the Greek state. It has been a busy year for EFMI characterized by an ambitious workplan and launching of internal projects managed by board members along the lines of Renew – Connect – Grow. COVID-19 has been a barrier to traditional cooperation, exchange of ideas, and collaboration, challenging EFMI to engage in more digital activities. COVID-19 has also been an opportunity for higher attendance in the council meetings. In my role as president, I represented EFMI in several advisory boards and digital events. Overall, more than seven keynotes or invited speeches fostering relations with European umbrella organizations were delivered. As part of EFMI's participation in the FAIR4Health project, under the leadership of EFMI Treasurer, Carlos Parra Calderon, we organized a 3-hour EU-US AMIA workshop on FAIR (findability, accessibility, interoperability, and reusability) data policy in March 2021. Follow-up workshops will elaborate on FAIR policy and support for a FAIR data certification roadmap for Healthcare Research Organizations. Towards the end of the year, the EFMI Executive Board investigates its strategic position in the post-COVID era characterized by the transformation of health and care with renewed focus on data and Artificial Intelligence (AI).

Catherine Chronaki, EFMI President (nov. 2020 - nov. 2022)

Introduction

EFMI, the European Federation for Medical Informatics is the leading organization in medical informatics in Europe. All European regional countries, as seen by the World Health Organisation (WHO), are entitled to be represented in EFMI with members that belong to a national Medical Informatics Society. The term medical informatics is used to include the whole spectrum of health informatics and all disciplines concerned with health informatics. EFMI is organized as a non-profit organization concerned with the theory and practice of information science and technology within health and health science in a European context. The objectives when founded in 1976 are still guiding: advance international co-operation and dissemination of information in medical informatics on a European basis; promote high standards in the application of medical informatics; promote research and development in medical informatics; encourage high standards in education in medical informatics; function as the autonomous European Regional Council of the International Medical Informatics Association (IMIA).

The EFMI Council oversees all activities of EFMI and gives the EFMI Board direction, means, and resources for activities to develop health and biomedical informatics in Europe. The EFMI Council fully supports ongoing efforts to professionalize operation of the federation, increase visibility in social media, participate in European projects, and the AC2 initiative to foster cross-border mobility for health informatics students and professionals in Europe.

The EFMI website (<http://www.EFMI.org>) and the Federation's social media support on Twitter, Facebook, and LinkedIn present updated work and accomplishments.

National Members

National members are the core of EFMI and they are national societies representing countries within the European Region of the WHO. Current members of EFMI are: Austria, Belgium, Bosnia and Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Romania, Russia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and United Kingdom.

Congresses

Each year, EFMI organizes two main conference series:

- Medical Informatics Europe - MIE, where the topics cover more domains, always covering important processes in Europe and the world related to digital health;
- Special Topic Conferences – STC, that has a more specific topic, encouraging EFMI Working Groups (WGs), usually 1-2, to present the work and connect the specific community.

The proceedings of these events are published in "Studies of Health Technologies and Informatics".

2021 was the first year of a 3-year contract with a PCO, MCO. MCO is responsible for the organisation and financial management of the EFMI conferences. The local organizers are responsible for the scientific quality of the STC and MIE. 2021 was a challenging year with the COVID-19 pandemic limiting travel and on-site social meeting. Nevertheless, EFMI has organized MIE 2021 online and it was a successful event involving the European and the worldwide community. In November, STC 2021 is the second online large event of

EFMI this year. We also expect currently a large success. It is important to highlight that moving conference of a unified community online is challenging, but EFMI is dealing with this efficiently and effectively for giving to its people the possibility to meet and to continue to work together over land and over sea.

Additionally, EFMI has organized in partnership with some of its member societies webinars such as "Adapting Education during COVID-19 Pandemic: Instruments and Solutions" with the Romania Society of Medical Informatics (SRIM) in late December 2020, offering to young researchers from its members to present in a non-formal environment their research and have the opportunity to get feedback from a solid professional community. EFMI team intends to continue these activities to enlarge the pool of researchers and grow its network.

MIE2021

The 31st Medical Informatics in Europe Conference (MIE 2021) was held on 29-31 May 2021. The MIE 2021 was planned to be held in Athens, Greece according to the EFMI Council decision. However, due to the continuous serious pandemic situation across the globe at the time for Call for Papers and Proposals, it was decided for the safety of the participants to be held as a Virtual event. The Conference was managed by a PCO company but the Scientific Program Committee (SPC) was chaired by Professor John Mantas, fellow of EFMI, and President of the Greek Biomedical and Health Informatics Association (GBHI). The event attracted more than 400 registered participants.

The current pandemic situation quite evidently emphasized the importance of Health Informatics into the scientific process of evidence-based reasoning and decision making at all stages of healthcare. For the last years, both the application of eHealth applications and the Digitalization are considered as important and fundamental paradigm changers in the new era of Health Informatics and Public Health. Massive amount of data from the molecular biology associated with massive data about the environment, behaviour and lifestyle, exposition factors and personal records, the rise of unprecedented processing power in health information systems and ar-

tificial intelligence as well as health analytics methods and tools, empowered Medicine, Nursing and Healthcare sciences, which are facing the Public Health challenges.

In this 31st annual experience, we had special tracks with European projects, and discussed the building of global frameworks to improve data usability to support life science research across borders, systems, and languages. Specific tracks devoted to encryption, blockchain and privacy-conscious data sharing, along with ethical and legal experts, investigating practical ways to support innovation to alleviate the burden of diseases such as COVID-19, and promoting surveillance networks.

The volume of the proceedings incorporated 261 papers (211 full papers and 50 short/posters), which were presented during the conference. In addition, 14 workshops, five panels, two tutorials, and 6 demonstrations were presented. The proceedings are published as an e-book with open access for ease of use and browsing without losing any of the advantages of indexing and citation in the biggest scientific literature databases, such as MEDLINE and Scopus, that the series of Studies in Health Technology and Informatics (SHTI) of IOS Press provides. The members of the SPC were John Mantas (chair), Lăcrămioara Stoicu-Tivadar (co-chair), Catherine Chronaki, Arie Hasman, Patrick Weber, Paris Gallos, and Mihaela Crișan-Vida, and the Editors of the proceedings were John Mantas, Lăcrămioara Stoicu-Tivadar, Catherine Chronaki, Arie Hasman, Patrick Weber, Paris Gallos, Mihaela Crișan-Vida, Emmanouil Zoulias, and Oana Sorina Chirila.

STC2021

The topic of STC was "Applying the FAIR principles to accelerate health research in Europe in the post-Covid19 era. Jaime Delgado (SPC chair) has led the scientific organisation of STC 2021 on behalf of the Spanish Society of Health Informatics (SEIS), represented by Carlos Luis Parra-Calderón. The SPC members included Arriel Benis, Paula de Toledo, Paris Gallos, Mauro Giacomini, Alicia Martínez-García and Dario Salvi. The involved working groups (WGs) are SSE, THI and ODH. The conference is presented online November

22nd to 24th, 2021. Distinguished guests, Mark Wilkinson and Alfonso Valencia gave keynote presentations. The proceedings volume is available at <https://ebooks.iospress.nl/volume/applying-the-fair-principles-to-accelerate-health-research-in-europe-in-the-post-covid-19-era-proceedings-of-the-2021-efmi-special-topic-conference>

ICIMTH 2021

The 19th International Conference International Conference on Informatics, Management, and Technology in Healthcare (ICIMTH) was organized by the Greek Biomedical and Health Informatics Association. Due to the pandemic the conference ICIMTH 2021 (www.icimth.com) was implemented as a Virtual Conference on 16 and 17 October 2021. The annual series of the conference examines the field of Biomedical and Health Informatics in a very broad framework presenting the research and application outcomes of Informatics from cell to populations, including a number of technologies such as Imaging, Sensors, and Biomedical Equipment and Management and Organisational aspects, including legal and social issues and setting research priorities in Health Informatics. Essentially, Data, Informatics, and Technology inspires health professionals and informaticians to improve healthcare for the benefit of patients. As it was expected a significant number of papers is related to the COVID-19 pandemic. The proceedings titled "Informatics and Technology in Clinical Care and Public Health", edited by J. Mantas, et.al, is published by IOS Press, contains 130 papers, which emphasize the fact that a significant percentage of submitted papers were addressing the current epidemiological situation spanning from U.S. and South America through Europe, Asia, Oceania and Africa, as it was being handled by the Informatics experts. Reinhold Haux provided a keynote speech as his farewell speech in the field of Biomedical and Health Informatics with significant remarks and advice to the colleagues sharing his fifty years' experience across the world by broadcasting this speech live to IMIA, EFMI, AMIA, and ACMI communities. Additional keynote speech was provided by Anne Moen on the international milestone project Gravitare Health with significant impact on Digital Health.

MIE2022

In May 2022, the European Federation for Medical Informatics (EFMI) is pleased to welcome you to Nice, France, for the 32nd Medical Informatics Europe Conference (MIE2022) : “Challenges of trustable AI and added value on health”. The Conference is organized by “MCO Congress” and the Scientific Program Committee is chaired by Brigitte Séroussi from the French Association for Medical Informatics (AIM).

Institutional Members

EFMI offers a platform for institutional membership and constantly preoccupies how to connect better with them. Currently, the institutions that typically become EFMI members include non-profit organisations like universities, research organisations, and non-governmental organisations (NGO), and for-profit organisations like small and medium size enterprises (SME) and multi-national companies. We have had different strategies to engage new institutional members and to raise visibility for the current institutional members. We aim to strengthen cooperation among national societies, working groups and institutional members through transparency.

Working Groups Activity

EFMI activities are organized across topic activities reflected in its 15 WGs. During 2021, EFMI WGs further elaborated and executed on their business plan. This year welcomed One Digital Health, <https://efmi.org/workinggroups/odh/>, as the newest WG of EFMI, which published a paper, organized a workshop in MedInfo2021, <https://pubmed.ncbi.nlm.nih.gov/33492240/>, and LinkedIn group as it took steps towards collaborating in the creation of a mirror IMIA WG. EFMI WGs have taken an active role in the pHealth2021 conference with prof. Bernd Blobel, Mauro Giacomini: pHealth 2021 - Proceedings of the 18th International Conference on Wearable Micro and Nano Technologies for Personalized Health - 8-10 November 2021, Genoa, Italy. Studies in Health Technology and Informatics 285, IOS Press 2021, ISBN 978-1-64368-226-6. The proceedings volume

is available at: <https://ebooks.iospress.nl/volume/phealth-2021-proceedings-of-the-18th-international-conference-on-wearable-micro-and-nano-technologies-for-personalized-health-810-november-2021-Genoa-Italy>.

The yEFMI WG started its activity, investigated and connected with target groups, disseminated the activity and sent questionnaires to the potential members from national members, and WGs. An analysis of the responses is in course and the results will support the members to develop suitable activities. The yEFMI members participated in webinars and presented their work in events to advertise for the group. The yEFMI officer is connecting to similar group in IMIA and will investigate for common interests and increase cooperation.

The EFMI Working Group "Health Informatics for Interregional Cooperation" (HIIC) promotes data, information, knowledge, and experience sharing in the enlarged European framework and World-Wilde. However, taking this challenge to the right way needs handling communication issues, such as the mistranslation of professional vocabulary, to discuss, from the perspective of the EFMI Medical Informatics multilingual Thesaurus, the challenges of interregional cooperation and collaboration in the European healthcare informatics landscape and how they may be factors of mutual professional expertise growth. The WG members had presentations of their work in all EFMI events and in events related to national members.

EFMI Communication and Dissemination

EFMI's Website

The EFMI's website enhances the Federation presence on the Internet media. The website aims to cover all the needs on information and collaboration between the stakeholders of medical informatics in Europe. The front page of the website works like a timeline giving up-to-date information to the visitors. In addition, the website is offering a direct access to all information regarding EFMI (Members, History, Working Groups etc.) and EFMI's actions (Accreditation and Certification, Conferences and Meetings, Research

Projects), as well as a link to EFMI's social media accounts. On the website, every person who is interested in medical informatics can create an account and gain access on specific content and to publish his/her ideas or opinions about a subject. The idea is to build an active on-line community for medical informatics in Europe where scientists will exchange knowledge, trends, discuss about challenges, and forming the future of medical informatics. All the content is being reviewed by the website content editors in order to keep a high-quality content on EFMI's new website. The content of the website can easily be published to the social media in order to gain more visibility and “reads” to achieve any dissemination requirements.

Social Networks

During 2021, EFMI reinforced its presence on social networks, having active Twitter, Facebook, LinkedIn and Instagram accounts. Social networks are valuable tools for networking and stakeholders' connection and collaboration. Currently EFMI's account on Twitter (www.twitter.com/efmi) has more than 1,000 followers. EFMI's page on Facebook (www.facebook.com/EFMIEuropeanFederationMedicalInformatics/) has also over 1,000 followers who are having access and get informed about the EFMI news and actions. LinkedIn account (<https://www.linkedin.com/company/efmi.org>) has 430 connections from all over the world.

EFMI Newsletter

In 2021, EFMI established a monthly newsletter which includes news from the EFMI's National Societies, Working Groups, Institutional Members, EFMI Events, Publications and Research Projects. The mailing list includes more than 500 subscribers across the EFMI's Region and the other countries. The EFMI's Newsletter aims to keep the community up to date without requiring visiting the website or the social media pages.

Books and Conference Proceedings

All EFMI conference proceedings are published in the IOS Press, Studies in Health Technology and Informatics (HTI)

series, since 1990, in collaboration with EU Research Framework programs, to promote biomedical and health informatics research. The series contains more than 285 volumes of high-quality works from all over the world. The HTI series is indexed by MEDLINE/PubMed; Web of Science: Conference Proceedings Citation Index - Science (CPCI-S) and Book Citation Index - Science (BKCI-S), Google Scholar, Scopus and EMCare.

EFMI AC2 – Accreditation and Certification Committee

EFMI established the Accreditation and Certification (AC2) initiative to implement the Accreditation and Certification process in education in biomedical and health informatics in Europe. A great variety of recent literature describes curricula in Biomedical and Health Informatics (BMHI), Medical Informatics, Medical Engineering, and Biomedical Engineering at European Universities, which are offered at all academic levels. The AC2 Committee chaired by John Mantas and with members Catherine Chronaki, Arie Hasman, Anne Moen, Inge Madsen, and Rebecca Randell firstly decided to map the educational status of BMHI in Europe by creating a database of educational programs across Europe since study programs in the entire spectrum of the field of Biomedical and Health Informatics, Medical Informatics and Health Technology.

This work was focused on European Universities, Colleges, and Institutions. The official website of each university or institution was carefully checked to locate educational programs in: Biomedical Informatics, Health Informatics, Medical Informatics, Medical Technology, Bioinformatics, Nursing Informatics, etc. The corresponding data of each study program was sent to the EFMI Representative Members to validate the existing information of each educational program in their corresponding countries. The verified data are uploaded to the website, and they are published (<http://efmi-ac2.bmhi-edu.org/>). This study has covered 30 EFMI Countries-Members. The study includes 1,900 Universities, which were accessed to locate

approximately 1,000 academic programs in the domains related to Biomedical and Health Informatics, including Bioinformatics and Biomedical Engineering at all academic levels. The Committee organized sessions to promote and provide awareness of the Accreditation and the Certification initiative to the wider biomedical and health informatics community in Europe and worldwide. More specific, members of the Committee participated in Hannover at EFMI STC 2019, in Lyon (France) at Medinfo 2019, presentations at MIE 2021, and at ICIMTH 2021.

As part of this initiative the AC2 Committee supported the establishment of new programs at Montenegro through Erasmus+. The new program was an MS program was established in “Health Information Management”. A supportive outcome of the project was the publication of a book titled “Health Information Management – Empowering Public Health” by J. Mantas et.al., IOS Press, 2020.

The EFMI AC2 Accreditation assessment do not intend to replace or overcome any National or International accreditation or law. The aim of EFMI AC2 Accreditation is to act as a complimentary judgement assisting and supporting to reach high quality academical educational programs in the field of Biomedical and Health Informatics. The assessment procedure for successful accreditation examines five criteria. The criteria are based on the Dublin descriptors as suggested by EU initiatives on accreditation. Dublin Descriptors are uniform requirements for higher education under the Bologna Process acting as a system of qualifications frameworks for evaluating students for bachelor's, master's, and doctoral degrees. The first accreditation by EFMI AC2 was awarded to the Master's program in Medical Informatics of UMIT in Austria during the opening session of the MIE 2021 in Athens. An accreditation process in BMHI needs to be based on updated educational recommendations by international organisations in the field that will encompass all health care professions needs and requirements in clinical, nursing, and public health institutions, universities and health organisations.

EFMI in EU H2020 Projects

The FAIR4Health Project – an EU Funded Project Horizon 2020 (2019-2021)

The main objective of FAIR4Health was to facilitate and encourage the EU health research community to FAIRify, share and reuse their datasets derived from publicly-funded research initiatives by demonstrating the potential impact such a strategy has on health outcomes and health and social research. The FAIR4Health solution was validated with the two pioneering case studies based on FAIRified data through the PPDDM framework. Identification of multimorbidity patterns and correlation of polypharmacy on mortality risk in the elderly. Early prediction service of 30-day readmission risk in patients with chronic obstructive pulmonary disease (COPD). The objective of these case studies was to test the tools developed in the project. The prototypes were developed, using federated machine learning methodologies and algorithms implemented on the FAIR-4Health platform.

EFMI has played a relevant role as responsible for the dissemination activity of the advances and results of the project and connecting and encouraging the scientific community of health informatics to develop the application of FAIR principles in the European region. The EFMI coordinator for this project is Carlos Luis Parra-Calderón. The project will be completed by the end of November 2021.

Some of the most relevant dissemination actions in which EFMI has led or participated are the following:

- EFMI has led a workshop on applying FAIR principles to Health research data in MIE 2021 using the FHIR standard, in collaboration with other consortium partners, among them HL7 and with the Research Data Alliance (RDA);
- EFMI has participated in a paper for Medinfo 2021 following the Medinfo 2021 workshop, entitled "FAIRness for FHIR: Towards Making Health Datasets FAIR using HL7 FHIR" in collaboration with other consortium partners and the Research Data Alliance.
- The complete Special Topic Conference 2021 is being organized by EFMI in collaboration with the Spanish Society of Health Informatics and the Institute

of Biomedicine of Seville (Spain), whose topic is "Applying the FAIR principles to accelerate health research in Europe in the post-COVID19 Era", scheduled from November 22-24, 2021.

The HosmartAI Project – an EU Funded Project Horizon 2020 (2021-2024)

HosmartAI – “Hospital Smart development based on AI”, aims to promote an effective and efficient healthcare system transformation, by the use of AI technological developments and robotics. To achieve this transformation, HosmartAI will create a common open integration platform with the necessary tools to facilitate and measure the benefits of integrating digital technologies (robotics and AI) for healthcare professionals, patients, information system managers and health organisation administrations. EFMI is involved on activities related to development of the Thesaurus, starting from the EFMI MIMT initiative, and refining it for different languages, also activities related to investigating and recommend the needs for specific standards. EFMI is involved in the dissemination, certification and training activities that will take into action in the second part of the project. EFMI coordinator for this project is Lacramioara Stoicu-Tivadar. The EFMI Team had a first presentation of the HosmartAI activities during STC 2021, in a Satellite event, Nov 23, 2021 ”Presenting HosmartAI H2020 project – EFMI Perspective and Contribution”.

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