1st EU-China Health Summit on Medical Innovation and Technology Transfer

On the 25th of August, Lyon and Medinfo2019 hosted the 1st EU-China Health Summit on Medical Innovation and Technology Transfer. Summit chairs, Catherine Chronaki, the vice president of the European Federation of Medical Informatics, and Zhi Yang, professor of Capital Medical University and the vice president of the China Medical Informatics Association, jointly hosted the opening ceremony and warmly received the respectful speakers and audiences from Europe and China.

Diana Zandi, World Health Organization (WHO) - Integrated Health Services Division of Universal Health Coverage and Life Course, opened the summit underlining the potential of digital health to address many challenges of our rapidly aging societies in accordance to the principles of the integrated people-centred care. WHO has established a new digital health department under the division of Chief Scientist and is currently developing a global strategy on digital health. The department will continue to support WHO Member States with the development and implementation of their national digital health strategies.
Professor Lacramiora Stoicu-Tivadar, president of the European Federation for Medical Informatics (EFMI), welcomed the participants from Europe and China noting “The 1st EU-China summit brings together best practices in Europe in terms of aging and the power of integrating data from China colleagues as expertise, working together for the best results looking for more years of healthy life and periods no longer requiring health care.”

Zhi Yang and Catherine Chronaki called for a joint mission in tackling the health issues involved with the elderlies. Catherine shared the increasing importance of patient summaries as a social good for the elderly in the data economy. A patient summary available in the International Patient Summary (IPS) standard format and can be viewed as a window to a person’s health information. IPS offers access to the latest health information including at a minimum conditions, medications, and allergies as an HL7 CDA document or as a set of HL7 FHIR resources. Catherine stressed the importance of patient summaries for elderly persons suffering from chronic diseases or rare diseases patients as advocated in Trillium-II project (www.trillium2.eu).

Opening Keynote
The opening keynote from professor Baoyan Liu (kindly presented by professor Zhi Yang) connected Traditional Chinese Medicine (TCM) to Big Data and AI developments in China. The keynote first introduced the nature of TCM and its suitability to elderly healthcare compared to the western medicine, such as TCM is holistic while western modern medicine is allopathic, and TCM is highly depended on the provider’s sense, experience, and thinking while western medicine combined technology and providers’ experiences. A TCM clinical research information sharing system was established to solve the problem of standardized collection, management and utilization of the clinical diagnosis and treatment data. The methods such as large-scale disease network, symptom-based gene prediction, molecular association map library (SymMap), knowledge mining and mapping and multi-stage clinical effective prescription analysis etc. have been adopted to evaluated Chinese medicine. A TCM Data Center and a health cloud-platform provide the business support and connectivity for more than 20,000 medical institutions. Some 7,000,000 MEDLINE data, the relationship between 327 symptoms and 4219 diseases with a diseases network of 7,400,000 edge were collected and analyzed.

Session 1: Research & Innovation Challenges in Health Informatics and Technology for Aging
The first session “Research & Innovation Challenges in Health Informatics and Technology for Aging” addressed challenges with geriatric patients for the nursing practice and in Emergency Departments.

The European Society of Emergency Medicine (EUSEM), recognized the challenge of geriatric patients visiting the Emergency Department (EDs) and constituted EUSEM section of Geriatric Emergency Medicine (EuS Geme) in 2016, to develop guidelines and offer guidance on educational and service delivery programs to improve quality
of older people care in EDs. At the same time EuSGEM collaborates with other societies (including European Union Geriatric Medicine Society and International Collaboration in Emergency Geriatrics), those have common objectives and active in influencing care of older people in EDs. The president of the European Association of Emergency Medicine, Dr. Luis Garcia-Castrillo Riesgo, highlighted the importance of collaboration among disciplines in managing geriatric patients.

Vice President of IMIA and Dean of the School of Nursing, Capital Medical University, Prof. Ying Wu, noted “Aging of the population and the burden of elderly care will continue to grow. The burden will both come from the overall economic situation and the capacity of the healthcare workforce in China. It is urgent and timely to build capacity to cope with this pressing problem.” She continued to say that “Innovation and development in remote monitoring of physiological, pathophysiological, and cognitive status, lifestyles and daily activities for possible incidences, etc., artificial intelligence assisted care, and elderly care robust might be the solutions for the challenge of aging society we are all facing,” and demonstrated mobile integrated elderly care system that are already in use in China. A “90-7-3” three-tier aged care system combines services from home-based, communities, and institutions. A SMART monitoring apps was provided assistance to keep patients healthy.

Brian O’Connor, ECHAlliance said that closer collaboration among all stakeholders, policy makers, health services, and industry are essential, if best practices lessons learned in one continent were to be shared with the other. In his experience, Ecosystems in both countries created a concrete, permanent way of joining the many players to work together on specific tasks. Brian advocated for Joint Task Forces on Policies and Standards, and analysis of services for the elderly as for example: “a hospital to home service” widely used in Europe, but not yet in China. In the final, he emphasized that technology is the only way to cope with the gaps of elderly people in China.
Prof. Wei Jie, MD director of the Emergency Department in Runmin Hospital of Wuhan University, member of the standing committee of the Chinese College of Emergency Physicians and honorary president of the Hubei Province Emergency Medical Association, presented the challenges of population aging to emergency medicine and proposed the establishment of Acute Care of the Elderly Unit (ACEU) as a future strategy to help the healthcare system for the growing needs of an ageing population. "It will be essential and a tremendous benefit to these older adult patients, their families, and Chinese society." Wei concluded.

The chairman of the Research Committee of EUSEM, member of EuSGEM, Prof. Mehmet Karamercan at the Gazi University School of Medicine Department of Emergency Medicine, Ankara/TURKEY, agreed with Prof. Wei Jie: "The geriatric population in Emergency Departments (EDs) not only increasing significantly but also acute care of them is more complex and challenging, and we need to have specifically designed Geriatric EDs or at least specific parts of EDs designed for geriatric patients, "The first Geriatric EDs are now been created in Europe."Mehmet also stressed the importance of team work in the emergency department, the need for developing of guidelines for the treatment of geriatric patients in EDs: specific geriatric ED teams highly skilled, uniquely trained and ready to work in a multidisciplinary fashion to meet the challenges of geriatric patients.

All panelists agreed that we have to put processes and technology to work, acting proactively to keep aging citizens away from the emergency department.
The second session, “Applying Big Data and Artificial Intelligence Research in Aging” was opened by Prof. Zhi Yang who presented his research on image guided intervention research. Prof. Yang highlighted the importance of the image quality and procedure safety issues. He presented the correlation of surgeons with radiation exposure during the procedures. Image quality can affect the success in many aspects of the intervention procedure. In the meantime, we must observe the safety guidelines to reduce risks such as radiation and errors during the medical procedures.
Dr Jocelyne Fayn from INSERM presented the results of over 20 years of work in electrocardiology, including the famous CSE databases and the EPI-MEDICS project on personalized self-care. With the development, she can reduce the detection time of a cardiac event between the first symptoms and hospital admission. The personal context features, for example, the smoking status and family history etc. were also added to enhance the model performance.

Professor Li Liu from Xiang Tan Central Hospital presented Saah-EKG technology, a new type electrocardiogram that can record non-invasively signals of cardiac events that were previously possibly only by invasive methods and can detect cardiac events by 12 minutes earlier. The newly calculated waveforms correlate with the local self-conduction associated with the anatomy details of the heart, such as PA, AH, HV interval information. It is verified through animal experiments and over 5000 clinical trials.
Vesa Jormanainen from National Institute for Health and Welfare (THL), Helsinki, Finland presented the recently developed European guidelines for trustworthy AI and introduced Findata, the new organizational and legal framework for data reuse in Finland, which implements the General Data Protection Regulation of the European Commission (GDPR).
Session 3: Applying Big Data and Artificial Intelligence Research in Aging

The third session “Enabling Collaborative Health Research and Innovation” had also two presentations from Europe and two from China. Professor Jialin Liu from West China Medical School of Sichuan University explains the experience in big data and clinical research activities in his school, which include the clinical big data platform and the big data analysis. He also addressed the challenges of big data analytics in healthcare in China, such as the data quality issues (data usability and trustworthiness, data fragmentation, data missing) and lack of law to protect data privacy. Prof. Liu also explained the approaches to implement big data in healthcare in China and the important practical lessons in big data analysis from their experience.
Then, **Professor Christian Lovis** MD MPH FACMI, University of Geneva and past president of EFMI, introduced FAIR data and recent developments on converging healthcare and research in Switzerland. He stressed some differences between FAIR data and OPEN data. EFMI is now part of FAIR4Health ([www.fair4health.eu](http://www.fair4health.eu)) a key project on using health data from hospitals in research coordinated by Carlos Parra from Andalusia, Spain. He noted the importance to build the data ecosystem.

In her presentation “Smart Textile from Lab to Hospital”: a 10 years’ path with challenges and opportunities”, Prof. Jingyuan Cheng from University of Science and Technology of China said “worn-by-default” wearable system, smart textile retrieves information continuously from a large area of the human body. High user acceptance, privacy friendly, non-invasive, these highlights may lead to huge business in both the textile industry and the healthcare system. But before smart textile walks out of the lab into the hospitals, the researchers still have to learn a lot from the doctors, the nurses and the patients.”
Petra Wilson, HealthConnect Partners and PCHA/HIMSS, highlighted the Need for common standards for a global data space for health research, and noted “It’s time to turn our focus from ‘who’ owns data, to ‘how’ it is used, to balance ideas of ownership and consent with the need for good data stewardship.”

EU-China Health R&I Collaboration opportunities
Following the keynote, participants attended short poster pitches proposing areas for EU-China collaboration. Dr. Vesa Jormanainen from the National Institute of Health and Wellfare in Finland presented the national Kanta services that offer digital services for social welfare and healthcare sector to benefit the citizens as well as social welfare and healthcare service providers. In fact, Kanta services are used by Finnish citizens, pharmacies, healthcare services and social welfare services. “Let’s exchange lessons learned! Let’s use twinning opportunities with others! Let’s use education and tools for better performance” proposed Vesa.
Giuseppe Fico, PhD and Assistant Prof in Biomedical Engineering at LifeStech research group, Universidad Politécnica de Madrid, presented the ACTIVAGE large scale pilot (https://www.activageproject.eu/) which supports the creation of ecosystems able to dynamically answer and prevent the challenges faced by the health and social care systems through the Internet of Things paradigm. He proposed that we pursue twinning opportunities with China.

Professor Hui Chen at the Capital Medical University suggested that interested groups in Europe and China collaborate on patient similarity measures based on Electronic Health Records and presented the work of her group in this area.
Strahil Birov presented the Digital Health Europe project and suggested that “Digital solutions supporting active and healthy ageing have a great potential if scaled up. International knowledge transfer is essential for providing better services for this challenging target group.” He added “We would like to set up twinning health projects among EU and China stakeholders to facilitate the transfer of know how towards developing and implementing better health products and services.”

Lembit Prin, from the Health and Welfare Information Systems Center (HWISC) Estonia, presented on the experience and plans in Estonia from integrated IT solutions highlighting the eAmbulance, eDealth, eBooking, noting that these services may help accelerate the improvement management of elderly patients.

Sirus Liu, PhD student from University of Utah, presented her work on Optimizing clinical decision support by applying artificial intelligence and machine learning for reducing the occurrence of unnecessary alerts and reminders in clinical decision support systems (CDSS) so that the providers can refocus on the potentially vital alerts and reminders. The work has potential to help the future design of clinical decision support systems.
Heli Kekäläinen, Savonia University of Applied Sciences, Finland presented her poster pitch on Welfare technology and robotics in robotics for aged citizens and asked for groups china eager to exchange experience.

Robbert Fisher, President of K4I presented a study in progress which seeks in investigate the degree to which AI inventions in pharma can be patented. Robbert noted that the rise of AI raises difficult questions within the field of intellectual property (IP) and in particular patent law. The prospect of autonomously “creating” or “inventing” by AI systems challenges current patent law. "Consider for moment, AI-based systems using Big Data could allow patent applicants to maximize the exclusivity claimed in their patent, leading to 'over protection.'"

Professor Chunyu Li explained the mechanism and prevalence of the Tako-Tsubo cardiomyopathy (heart-broken syndrome). He eagerly hoped to find groups in Europe to collaborate in the research and clinical study of Tako-Tsubo cardiomyopathy (heart-broken syndrome).

Closing Keynote and panel
The closing keynote was delivered by Prof. Martin Ingvar from Karolinska Institute in Sweden who captured the audience with his inspiring speech on the Blueprint for a joint mission on aging, stating three principles: (1) The information must follow the patient and allow for sharing of planned actions; (2) Shared interprofessional decisions requires shared information; (3) The patient has the right to all individual information.

In the closing session co-chaired by Kaija Saranto chair of the EFMI Education WG and professor at the University of Eastern Finland and Prof. Zhi Yang, Prof. Dongsheng Zhao, Military Academy of Medical Sciences in China joined Catherine Chronaki, Louise Bilenberg Pape-Haugaard, and Luis Garcia-Castrillo Riesgo, and presented important investments and funding initiative in China to address health technology for aging.

Dr. Luis Garcia-Castrillo Riesgo, President of EUSEM, highlighted the importance of collaboration between health informatics and different disciplines to keep elderly people health for as long as possible. Catherine Chronaki urged the participants to share their thoughts and notes from the long day for vision document which will be the next step in collaboration.

Closing the 1st EU-China Health Summit on Medical Innovation and Technology Transfer Prof. Yang said “This summit is very unique and effective platform for dialogue and collaboration on aging and the associated healthcare technology developments in Europe and China. We want to keep and grow this channel and momentum to produce great solutions to the people’s life quality through technology development and innovations. We are proposing to hold the next summit in China, Suzhou, next August, to continue the dialogue and further our effort for better healthcare outcomes. We looking forward to welcome you.”

Lyon 30-August-2019
About CMIA

China Medical Informatics Association (CMIA), the Chinese counterpart of EFMI, established in 1980, it is an academic community composed of more than 6000 experts and scholars, technicians and managers who work in the field of medical informatics, with more than 20 working groups. CMIA is part of the China Association for Pharmaceuticals and Medical Devices Technology Exchange (CPDE). CPDE was established in 1993 as a professional nonprofit organization comprised of institutes, companies, experts and scholars in the field of pharmaceuticals and medical devices technology. The CPDE goals are building on the principles of reform, innovation, service, self-discipline, to promote research and development of pharmaceuticals and medical devices, to promote application of medical technology, to enhance domestic and international medical exchange, and to boost sustainable development of health industry.

About EFMI

The European Federation for Medical Informatics (EFMI) was established by the Regional Office for Europe of the World Health Organisation (WHO), in Copenhagen in September 1976 as a non-profit organisation concerned with the theory and practice of Information Science and Technology within Health and Health Science in a European context as defined by WHO. Nowadays, EFMI has more than 32 national associations that span from Iceland to Israel and from Portugal to Slovenia. In addition, 14 working groups cover the whole spectrum of the scientific domain of Biomedical Informatics, among those are: Health Records, Information Systems, Data Analytics, Education, Imaging, Evaluation of Health Information Systems, Standards, Nursing Informatics, Translational Bioinformatics and Citizens and Health Data. Besides national associations and working groups EFMI has introduced the notion of institutional membership where academic and corporate organisations may participate in the activities (www.efmi.org/Workgroups).

The objectives of the European Federation for Medical Informatics (EFMI) are: to advance international cooperation and dissemination of information in Medical Informatics on a European basis; to promote high standards in the application of medical informatics; to promote research and development in medical informatics; to encourage high standards in education in medical informatics; to disseminate knowledge in the field developed within national associations among and to the countries constituting EFMI; to provide guidelines and accreditation on education and training in Biomedical Informatics and Health Informatics; and to function as the autonomous European Regional Council of IMIA.