

# EFMI Working and Project Groups - Overview and Current Activities

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## Current Working and Project Groups

EFMI is a nonprofit organization concerned with the theory and practice of Information Science and Technology within Health and Health Science in a European context. Apart from other activities EFMI's success heavily relies on the work been done by its working groups. Currently EFMI has 16 active working:

- EDU - Education in Health Informatics
- EHR - Electronic Health Records
- EVAL - Assessment of Health Information Systems
- HIIC - Health Informatics for Interregional Cooperation
- HIME – Health Information Management Europe
- HOFMI - Human and Organisational Factors of Medical Informatics
- IDeS - Information and Decision Support in Biomedicine and Health Care
- LIFOSS - Libre/Free and Open Source Software in Health Informatics
- MCRO/MBDS - Casemix, Resources Management and Outcomes of Care
- MIP - Medical Image Processing
- NLU - Natural Language Understanding
- NURSIE - Nursing Informatics in Europe
- PCI - Primary Care Informatics
- PPD Personal Portable Devices
- SSE – Safety, Security and Ethics
- THI- Translational Health Informatics

Currently Lacramioara Stoicu-Tivadar, EFMI Vice President in charge with WG activities and Tze Yun Leong, IMIA Vice President for WGs are working together to encourage an active collaboration between both organization's working groups. The objective is to identify common goals and harmonize the cooperation between EFMI and IMIA WG actions.

The following paragraphs provide detailed information about selected working groups from EFMI.

### EFMI WG EDU

#### Education in Health Informatics

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### Main Objectives:

The introduction of eHealth applications as well as of the Biomedical and Health Informatics (BMHI) discipline into the health care domain requires high quality educated and trained professionals, from the health and technology domains. Education is considered as the most appropriate tool to improve greatly the acceptance attitudes and behavior of the professionals working in the healthcare environment towards eHealth applications. EFMI is well aware of the importance of Education and in its history the working group in education was the first working group to be established. Since education has an international value and there no borders in its objectives, the working group seeks to achieve International cooperation in its main objectives which they may be summarized as follows: information on existing programs and curricula in the field, dissemination of experiences in implementing educational programs, evaluation, and accreditation of programs, and finally certification of users in BMHI knowledge and skills. A more detailed reference to the objectives can be found below:

- to disseminate and exchange information on Biomedical and Health Informatics (BMHI) programs and courses.
- to exchange experiences of how BMHI is taught and to improve the implementation

## EFMI WG EDU

(continued)

- to establish a database on programs and courses on BMHI education
- to produce international recommendations on BMHI education
- to support BMHI courses and exchange of students and teachers within the EFMI countries.
- to foster the accreditation process of BMHI programs in Europe.
- to explore the process of certification of knowledge and skills of users in BMHI
- to investigate the possibility of establishing summer courses organized by the WG EDU

### Relevant Activities:

- A panel discussion was accepted and organized during Medinfo 2013 in Copenhagen for the accreditation process. In the panel besides the chair and co-chair of the WG representatives of AMIA and IMIA joined exchanging experiences and presenting intended activities in accreditation. It was attended by more than a hundred participants.
- A paper prepared by the chair and co-chair was presented as oral presentation at Medinfo 2013 in Copenhagen regarding the accreditation process. It was well accepted.
- During the joint Board meetings of IMIA and EFMI the issue of representation of EFMI in the accreditation process of academic programs was raised and it was agreed that EFMI will be presented in the accreditation committee and EFMI will be mentioned in the accreditation certificate whenever an accreditation is taking place in an EFMI country.
- The activities of the WG EDU and important outcomes will be cited in the new website of the WG EDU.
- A number of educational related papers were presented during the International Conference in Informatics, Management and Technology in Healthcare in Athens on July 2014.
- Providing an operational website for the WG EDU.
- Participation in eHealth forum organized by the Ministry of Health in Athens on May 2014.
- Organized a workshop of the WG EDU at MIE 2014.

### Activities Planned for 2015:

- Enhancing the cooperation between EFMI and IMIA in the accreditation process.
- Providing, updating and supporting an operational website for the WG EDU.
- Updating the database of the educational programs in Europe hosted at WG website.
- Investigating the logistics in supporting a summer course in BMHI.
- Organizing WG meetings in MIE2015 and Medinfo2015.

### Relevant Recent Publications:

- Hasman A, Mantas J. IMIA Accreditation of Health Informatics Programs. *Healthc Inform Res.* 2013 Sep;19(3):154-61.
- Mantas J, Hasman A, Shortliffe EH. Assessment of the IMIA educational accreditation process. *Stud Health Technol Inform.* 2013;192:702-6.
- Zogas S, Lialiou P, Gallos P, Mantas J. The e-learning programmes in Greek Universities: a literature review. *Stud Health Technol Inform.* 2013;190:89-91.
- Lialiou P, Mantas J. Evaluation of health professionals in the use of internet information retrieval systems in health: a literature review. *Stud Health Technol Inform.* 2013;190:80-2.
- Friedman C, Hasman A, Holmes J, Mantas J, Saranto K. International Perspectives on Program Accreditation for Professional Education in Informatics. *MedInfo 2013:* 1241.
- Hasman A, Mantas J, Zarubina T. An abridged history of medical informatics education in Europe. *Acta Inform Med.* 2014 Feb;22(1):25-36.
- Manifava E, Kolokathi A, Mantas J. Exploring the biomedical and health informatics educational programs in Europe. *Stud Health Technol Inform.* 2014;202:67-70.

## EFMI WG EHR

### Electronic Health Records

#### Chair:

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<http://www.efmi.org/index.php/workinggroups/ehr-electronic-health-records>

### Main Objectives:

The working group deals with the issue electronic health records in the different levels of development: case level, organisational level, regional level, national level, and international level. The Working Group supports

- Studies on specification, implementation, and promotion of standards for EHR and PHR
- Modeling of EHR architectures and interoperability
- Education on the EHR field

### Relevant Activities 2014:

- Active involvement in the preparation of pHealth 2014 in Vienna, Austria, in cooperation with the EFMI Working Groups “Personal Portable Devices (PPD)” and “Security, Safety and Ethics (SSE)”
- Engagement in the Village of the Future Workshop “Let’s Meet Where The Continents Meet” at MIE 2014, 1 September 2014, Istanbul, Turkey
- Engagement in development and revision of EHR standards at ISO, HL7 and CEN

### Activities Planned for 2015:

- Active involvement in the preparation of pHealth 2015 in Västerås, Sweden, in cooperation with the EFMI Working Groups “Personal Portable Devices (PPD)” and “Security, Safety and Ethics (SSE)”
- Preparation of an Interoperability Workshop at MIE 2015 in Madrid in cooperation with the EFMI WG “Security, Safety and Ethics (SSE)” and HL7 International
- Preparation of a Working Group Meeting at MIE 2015 in Madrid
- Transfer of the WG Leadership to Dipak Kalra

### Relevant Publications 2014:

- Oemig F and Blobel B. Natural Language Processing Supporting Interoperability in Healthcare. In: Biemann C, Mehler A (Eds.) Text Mining – From Ontology Learning to Automated Text Processing Applications, 137-156. Series Theory and Applications of Natural Language Processing. Heidelberg: Springer-Verlag GmbH; 2014.
- Blobel B, Goossen W, Brochhausen M. Clinical modeling – A critical analysis. International Journal of Medical Informatics 2014; 83, 1: 57-69.
- Uribe G, Lopez D, Blobel B. Towards Automated Biomedical Ontology Harmonization. Stud Health Technol Inform 2014; 200: 62-68.

## EFMI WG EVAL

### Assessment of Health Information Systems

#### Chair:

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### Main Objectives:

Information and communications technologies (ICTs) are being used increasingly in health care. It is evident that the use of modern ICT offers tremendous opportunities to reduce clinical errors, to support health care professionals, and to increase the efficiency of care. However, there are also hazards associated with such technologies. Therefore, rigorous, generalizable evaluations of ICT applications in health care are absolutely necessary. Therefore, the aims of the working group are:

- to foster discussion between experts from informatics, medical informatics, economics, health care, health services research, clinical epidemiology, biometry, psychology, sociology, ethnography, organizational development, operations research and other evaluation fields, on a European level, and to encourage exchange on methodological issues between researchers from different traditions;
- to offer an opportunity to share knowledge with the aim of obtaining profitable cross-fertilization among different fields of expertise and especially between quantitative and qualitative research;
- to promote a combined research agenda to develop frameworks and toolkits for information systems evaluation, offering guidelines for an adequate combination of evaluation methods and tools;
- to discuss and clarify the networking needs for long-term evaluation research in medical informatics, and to promote combined research proposals at a European level

### Relevant Activities 2014:

- The WG organized a workshop with around 30 participants at MIE 2014 in Istanbul: "Health IT Evaluation in Health Informatics Curricula" (for details, see <http://iig.umit.at/efmi>). The discussion process will be continued at MIE2015.
- The WG organized a joint Business Meeting with the sister WG on Technology Assessment and Quality Development in Health Care of IMIA (International Medical Informatics Association) at MIE 2014 in Istanbul. Future joint activities were discussed and planned.
- Members of the WG participated in organization of a workshop "Monitoring eHealth benefits – dream or reality?" and a workshop "Improving the science of health informatics by using validated instruments and outcome measures" at MIE2014, Istanbul.
- The WG organized, together with the IMIA WG and AMIA WG, an AMIA webinar on the STARE-HI explanation and elaboration paper in February 2014.
- The WG initiated a structured discussion on the question whether an international book on health IT evaluation is needed and should be coordinated by the WG. After positive feedback from several group members, a proposal for such a book was developed and was sent to interested publishers.
- The WG submitted a paper on patient portals to the IMIA Yearbook of Medical Informatics 2015.
- The bibliography on health IT Evaluation was maintained and is available at <http://iig.umit.at/efmi/bibliography.htm>. The list contains journal papers and books considered as milestone publications.
- The web-based Health IT Evaluation Inventory was maintained. It now comprises around 1.850 abstracts of evaluation papers in health informatics that can be retrieved. It also allows researchers from all over the world to submit papers for inclusions. The Health Evaluation Inventory is available for free at <http://evaldb.umit.at>.

### Activities Planned for 2015:

- Coordinating an international text book on health IT evaluation
- Organization of a workshop on health IT evaluation education at MIE 2015 (accepted)
- Organization of a workshop on health IT evaluation education at Medinfo 2015 (submitted)
- Organization of a workshop on the theory base of evidence-based health informatics at Medinfo 2015 (submitted)
- Strengthening of the links to the sister WGs of AMIA and IMIA by joint activities
- Extending the links to the WHO Global eHealth Evaluation Collaboration
- Further update of the health IT Evaluation Inventory.

## EFMI WG EVAL

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## EFMI WG HIIC

Health Informatics for Interregional Cooperation

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<http://www.efmi.org/index.php/workinggroups/hiic-health-informatics-for-interregional-cooperation>

### Relevant Publication 2014:

Members of the working group were involved in several publications on health IT evaluation topics, for example:

- A. Kushniruk, J. Kaipio, M. Nieminen, H. Hyppönen, T. Lääveri, C. Nohr, A. M. Kanstrup, M. Berg Christiansen, M.-H. Kuo, E. Borycki. Human Factors in the Large: Experiences from Denmark, Finland and Canada in Moving Towards Regional and National Evaluations of Health Information System Usability. Contribution of the IMIA Human Factors Working Group A. Yearb Med Inform. 2014 Aug 15;9 (1):67-81. doi: 10.15265/IY-2014-0023.
- Gilstad H, Faxvaag A, Hyppönen H, Koch S, Nøhr C, Skauli K. Multinational surveys for monitoring eHealth policy implementations--usefulness and pitfalls. Stud Health Technol Inform. 2014; 205:231-5.

### Main Objectives:

- To promote exchange of information and experiences between actors in different regions in Europe.
- To investigate the needs, opportunities and obstacles for e-health and to review and select from different education options for developing regions.
- To disseminate European and world-wide results and experiences across regions and between professionals
- To facilitate access to European groups and their facilities and outcomes by students and health professionals from developing regions
- To disseminate European and world-wide results and experiences across developing regions and professionals

### Relevant Activities 2014:

- Supporting the program for the conference and participation in EFMI STC2014, Budapest, Hungary
- Participation in EFMI MIE2014, Istanbul, Turkey
- Resuming close cross border cooperation with neighbours, Hungary (Szeged) and Serbia (Vrsac) in medical informatics education and e-health projects

### Activities Planned for 2015:

- Supporting the program and participation in EFMI MIE2015, Madrid, Spain
- Preparing projects for consolidating cross border cooperation with neighbours, Hungary (Szeged) and Serbia (Vrsac) in e-health projects

### Relevant Publications 2014:

- Vida, Mihaela, Lupse, Oana, Gomoi, Valentin, Stoicu-Tivadar, Lacramioara, Stoicu Tivadar, Vasile, Bernad, Elena, Using Web Services to support the interoperability between health-care information systems and CDS systems, Journal of CONTROL ENGINEERING AND APPLIED INFORMATICS, Volume: 1, Issue: 1, 106-113, MAR 2014.
- Virag Ioan, Stoicu-Tivadar Lacramioara, Amaricai Elena, Browser-based medical visualization system, Eds: Szakal, A, 2014 IEEE 9TH INTERNATIONAL SYMPOSIUM ON APPLIED COMPUTATIONAL INTELLIGENCE AND INFORMATICS (SACI), pp 355-359, 9th IEEE International Symposium on Applied Computational Intelligence and Informatics (SACI), Timisara, ROMANIA, MAY 15-17, 2014.
- Lupse, Oana-Sorina, Stoicu-Tivadar Lacramioara, Pediatrics prescriptions with ontologies and treatment suggestions, Studies in health technology and informatics, Volume 205, pp 403-407, 2014, Conference MIE2014, Istanbul, Turkey, August-September 2014.
- Crisan-Vida Mihaela, Stoicu-Tivadar Lacramioara, Increasing information accessibility for patients in obstetrics-gynecology domain, Studies in health technology and



## EFMI WG HIIC

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## EFMI PG HIME

Health Information Management Europe

### Chair:

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### Lorraine Nicholson

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<http://www.linkedin.com/groups/EFMI-HIME-Health-Information-Management-4550722/about>

informatics, Volume 205, pp 448-52, 2014, Conference MIE2014, Istanbul, Turkey, August-September 2014.

- Stoicu-Tivadar Lacrimioara, Stoicu-Tivadar, Vasile, Berian Dorin, Dragan Simona, Serban Alexandru, Serban Corina, eduCRATE - a Virtual Hospital architecture, Studies in health technology and informatics, Volume 205, pp 803-807, 2014, Conference MIE2014, Istanbul, Turkey, August-September 2014.
- Mihalas George, Tudor Anca, Paralescu Sorin, Andor Minodora, Stoicu-Tivadar Lacramioara, Teaching bioinformatics to engineers, Studies in health technology and informatics, Volume 205, 828-832, 2014, Conference MIE2014, Istanbul, Turkey, August-September 2014.
- Crisan-Vida Mihaela, Serban Alexandru, Ghihor-Izdraila Ioana, Mirea Adrian, Stoicu-Tivadar Lacramioara, User friendly IT Services for Monitoring and Prevention during Pregnancy, Studies in health technology and informatics, Volume 202, pp 241-244, 2014, ICIMTH Conference, Athens, Greece, July 2014.
- Serban Alexandru, Crisan-Vida Mihaela, Stoicu-Tivadar Lacramioara, Data and knowledge in medical distributed application, Studies in health technology and informatics, Volume 197, pp 41-45, 2014, STC 2014, Budapest, Hungary, April 2014.

### Main Objectives:

The group operates as a "think-tank" drawing together leading-edge expertise not only from across the medical documentation and medical informatics spectrum but also from other professions with relevant generic input to focus on selected topic areas in support of clinical and healthcare research and routine processes.

- To promote exchange of experience in development, implementation, education, and use of health record systems
- To promote exchange of standards in close co-operation with SDOs (standard development organizations) and institutions working in the field on national and European level.
- To investigate the needs, opportunities and obstacles for health information management.
- To disseminate results and experiences across EFMI members
- To facilitate access to European educational facilities and EFMI members

### Activities in general:

- Supporting activities of EFMI, its members (resp. their national societies) and IFHIMA-Europe, especially MIE and STC conferences.
- Organizing workshops on national and European level
- Initiation of a Forum using Internet and other publication media.
- Making educational and promotional material available
- Preparation of IFHIMA (International Federation of HIM associations) conferences

### Relevant Activities 2014:

- LinkedIn group EFMI-HIME. Number of members: 436; several topics for discussion and announcements in 2014
- Workshop on "Capacity Planning" at Schliersee-Konferenz, 28 January 2014
- CONVENE2014, 12-13 February, Vilnius and Kaunas
- Seminar HIME at STC2014 in Budapest, Health Information Management (HIM) - Achievements, Chances, and Perspectives for Europe
- Participation and presentation at WCIT 2014, Guadalajara / Mexico
- Participation and presentation TELEMED2014, Berlin, in cooperation with EFMI EDU
- Publication in EJBI together with EFMI EDU
- Participation at JCMi2014, 5-8 Nov 2014, Chiba, Japan

### Activities Planned for 2015:

- Organisation of discussions and promotions on the LinkedIn group EFMI-HIME
- CONVENE2015, 11-12 February, Vilnius
- Participation at MEDINFO2015 organised/proposed by IMIA
- ICIST2015, 15-16 October, Lithuania, Session "eHealth Information Management Systems"

## EFMI WG HOFMI

### Human and Organizational Factors of Medical Informatics

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## EFMI WG IDeS

### Information and Decision Support in Biomedicine and Health Care

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#### Co-Chair:

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## Main Objectives

- To organize workshops and tutorials dedicated to the WG topics at MIE conferences and other events
- To establish networks of people involved in human and organizational factors in the healthcare domain, and to learn about new developments and their activities
- To disseminate knowledge about human and organizational factors in medical informatics by various activities, such as conferences, panels, workshops, educational events and publications.
- To encourage individuals to publish research and other work in journals

### A period of transition

After being a chair of HOFMI for almost 18 years Dr. Jos Aarts has stepped down as chair. His main reason is to make place for younger ambitious scholars to be part of the new leadership of EFMI. The field of human and organizational factors in health informatics has matured during these years and has been productive in terms of conferences, conference presentations and scientific publications. The EFMI Council has confirmed Dr. Rebecca Randell, Senior Translational Research Fellow in Faculty of Medicine and Health of the University of Leeds as the new chair of HOFMI. Jos Aarts will introduce her to the EFMI Council at the next MIE conference in Madrid. Dr. Randell will serve under the new rules for working group chairs decided by the council. Her scientific profile can be found on: [http://medhealth.leeds.ac.uk/profile/1100/371/rebecca\\_randell](http://medhealth.leeds.ac.uk/profile/1100/371/rebecca_randell).

## Relevant Activities 2014:

Because of the transitional period, no HOFMI sponsored events were organized at MIE 2014 in Istanbul.

## Activites Planned for 2015:

- At MIE 2015 in Madrid a HOFMI sponsored panel ‘Designing for Patient safety’ will be organized. Panelists are Jos Aarts (now at the State University of New York at Buffalo), Elizabeth Borycki and Andre Kushniruk from Victoria in Canada, Sylvia Pelayo from Lille and Farah Magrabi from Sydney in Australia.
- On August 15 and 16, 2015 the conference “Context Sensitive health Informatics” (CShI) will be held in Curitiba, Brazil as a pre-Medinfo conference. The conference is endorsed by IMIA, EFMI and AMIA. European SPC members are Christian Nøhr and Rebecca Randell. Information is available on: <http://cshi2015.org>.

## Main Objectives

Decision support systems (DSS) in biomedicine and health care, in the form of various applications, guidelines or reminders, is applied more often to assist the decision making processes. The complexity of decision-making procedures in these areas caused the development of various decision support systems in order to provide help to the decision makers. DSS are using existing knowledge and evidence, helping the decision maker to make appropriate decision for the specific situation. The quality and comprehensiveness of existing evidence and knowledge that are used in such systems, influence in deriving appropriate decisions, and indirectly affects decision maker’s behavior. DSS needs to be analyzed, systematized, and validated before adopting them for routine use because of its influence on decisions and decision makers.

- Analysis of currently available Decision Support Systems in biomedicine and health care, especially in the European environment
- Classification of existing Decision Support Systems
- Definition of the recommendations set for successful evaluation and implementation of the Decision Support Systems

## Relevant Activities 2014:

- Presentation at the European Society of Anesthesiologists meeting, ESA 2014 Stockholm, Sweden, May 31-June, 2014.
- Presentations at One Health Symposium Slavonski Brod, Croatia, 5-7 June 2014.

## EFMI WG IDeS

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## EFMI WG LIFOSS

Libre/Free and Open Source Software

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<http://www.efmi.org/index.php/workinggroups/lifoss-librefree-and-open-source-software>

- Presentation at 21st International Scientific Symposium on Biometrics Dubrovnik, Croatia, 11-14 June 2014.
- Local WG meeting during CSMI Annual Meeting, Zagreb, Croatia, November 14, 2014.

### Activities Planned for 2015:

- Organizing Workshop at the MIE 2015.
- Organizing Special Session at the 12th CSMI Symposium – Medical Informatics 2015.
- Individual presentations at different meetings focused on decision support topics.

### Relevant Publications 2014:

- Šimurina T, Sonicki Z. Predictive model for postoperative vomiting based on CoPlot visualization technique. *Eur J Anaesthesiol* 2014; 31 Suppl 52: 1AP5-3. Presented at the European Society of Anesthesiologists meeting, ESA 2014 Stockholm, Sweden, May 31-June 3, 2014. Publication 3
- Sonicki Z. Statistical Modelling and Case-Based Reasoning – Method to Capture New Experience. Presented at the One Health Symposium Slavonski Brod, Croatia, 5-7 June 2014.
- Meštrović T. Prediction of Operative Mortality in Vascular Surgery - Using Data Mining Methods. Presented at the One Health Symposium Slavonski Brod, Croatia, 5-7 June 2014.

### Main Objectives:

Libre/Free Open Source Software holds a great potential to overcome the fragmentation in health IT and to foster collaboration among different disciplines and stakeholders. The WG promotes this approach, organizes workshops and serves as a networking platform for individuals interested in this approach. In particular the LIFOSS WG aims

- to help replicate the success of free/libre and open source projects in the health informatics domain, in particular those within education, research, clinical practice and administration
- to build a repository of knowledge about free/libre and open source developments of relevance to the health informatics domain
- to develop an Open Source Market Place
- to explore the implications of digital rights management, digital signatures, copyright and intellectual property issues
- to liaise with other organizations and groups with related or similar objectives

### Relevant Activities 2014:

- Co-organization of and participation in IWEEE 2014, 29-30 May 2014, Las Palmas, Gran Canaria
- Co-organization of FLOSS Village at Med-e-Tel 2014, 9-11 April 2014, Luxemburg
- Co-organization of FLOSS workshop at MIE2014, 31.8.-3.9.2014, Istanbul, Turkey
- Maintenance of the MedFLOSS.org database

### Activities Planned for 2015:

- Organization of a FLOSS in health related workshop at MIE2015 in Madrid, Spain
- Co-organization of FLOSS Village at Med-e-Tel 2015, 22-24 April 2015, Luxemburg
- Co-organization of a FLOSS workshop at MEDINFO2015, Sao Paulo, Brazil
- Co-organization of IWEEE 2015, 25 September, Las Palmas, Gran Canaria
- Session at Global Forum on Research and Innovation for Health 2015, 24-27 August, Manila, Philippines
- Maintenance of the MedFloss.org database

### Relevant Publications 2014:

- Karopka T, Schmuhl H, Demski H. Free/Libre Open Source Software in Health Care: A Review. *Healthc Inform Res.* 2014 Jan;20(1):11–22. Retrieved from : <http://www.ncbi.nlm.nih.gov/pubmed/24627814>



## EFMI WG MIP

### Medical Image Processing

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<http://efmi.azurewebsites.net/> (temporary URL while under construction)

### Main Objectives:

Telemedicine and cloud-based medical records, patient-centered research and computer-assisted imaging in controlled clinical trials as well as computer-aided detection and diagnostics are important future domains of medical informatics, where algorithms in image processing and analysis, comprehensive evaluations and workflow-integrated applications are to be developed and operated. Here, medical informatics provides key technologies to innovations in interdisciplinary and translational research. Our outstanding methods improve health care and support medical services in all European nations.

WG MIP aims at fostering European interconnection of medical imaging software technology. In particular, the WG works for the (1) establishment of European medical image registries, which are usually born by individual physicians treating rare diseases but being unable to operate databases in the Internet that fulfil privacy and security regulations; (2) IT-support of clinical trials for individualized medication and treatment, where non-DICOM data (e.g., photographs, ECG recordings) is captured as the base of surrogate endpoints; and (3) ambient assisted living, which is recording and processing a variety of novel signal and data, where proprietary formats need replacement with interconnecting European standards.

Such technology already has replaced PACS and DICOM from research focus yielding novel challenges for medical image processing. In the EFMI MIP community, standards and reference databases can be established and disseminated by EFMI meetings and publications. WG MIP will therefore provide platforms for personal interchange and interconnecting, organize special sessions on European and international meetings, and continue supporting exchange within the group members.

### Relevant Activities 2014:

A main activity is forming a website supporting the functional requirements for distance collaboration. Unlike the previous version, the new site is designed as a dynamic site allowing administrator or users (after registering as a new member) login into the site in order to add or remove any relevant meeting, announcements, and other information of relevance. All info will be visible for all visitors of the site. A data entry needs to be executed to add all previous announcement and meeting into the site as well as adding styles (e.g. logo, ...) when the site moving to a permanent server. The site will have functionality of automatically emailing new announcement to all registered members.

Other activities of relevance:

- Member voting of new Chair and Co-Chair
- Approval of the new Chairs by EFMI Board
- Meeting at MIE2014 in Istanbul, August 31st – September 3rd, 2014.
- An EU collaborative joint research proposal, including a few members of EFMI boards, was submitted to the Specific Programme “Cooperation”, Theme 1 “Health”: H2020-PHC-2015. The title of proposal was “Medical Imaging Intelligent infrastructure (MedIII)”. Unfortunately, the proposal has been rejected at first stage.
- Attending the 28th International Congress and Exhibition of Computer Assisted Radiology and Surgery (CARS), held in Fukuoka, Japan, June 25th – 28th, 2015. An invited talk was given by the Co-Chair.
- Presenting a paper at MIE 2014

### Activities Planned for 2015:

- organizing a computer aided diagnosis workshop for CARS 2016
- Providing an operational website for the WG MIP
- Investigating possibility and Biding for hosting MIE conference in London for earliest available year.

### Relevant Publications 2014:

- Dehmeshki J, Ion A, Ellis TJ, Doenz F, Jounannic AM, Qanadli SD. Computer aided detection and measurement of peripheral artery disease. MIE 2014: 1153-1157; Invited Speaker: Jamshid Dehmeshki, CARS 2014, Japan.

## EFMI WG NLU

### Natural Language Understanding

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## EFMI WG NURSIE

### Nursing Informatics in Europe

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### Main Objectives:

- To organize scientific and training events, such as workshops and conferences dedicated to NLP (Natural Language Processing) and related fields (semantic interoperability, information re-trieval, text mining...) applied to the bio-medical domain in a broad sense;
- To represent EFMI in general purpose Natural Language Societies, as well as in biomedical and molecular biology forums (e.g. ISMB, International Society for BioCuration) and to lobby to promote EFMI's expertise to standards and policy-makers (WHO, National Library and Medicine, ECDC, Innovative Medicine Initiative) for instance by helping to prepare strategic research agenda of research funding agencies via project such as epSOS/EXPAND (<http://www.expandproject.eu/>);
- To develop and maintain capacity services in the field of biomedical natural language processing, text mining and information retrieval; in particular to bridge the gap between bio- and medical informatics under the umbrella of the Elixir Infrastructure (<http://www.elixir-europe.org/>).

### Relevant Activities 2014:

- Patrick Ruch was invited speaker at the BioASQ workshop during CLEF 2014 in Sheffield with a talk on "Deep Biomedical Question Answering";
- Julien Gobeil was plenary speaker at TREC in November 2014 with a presentation on Clinical Decision-Support based on case-base retrieval.

### Activities Planned for 2015:

- Joint Workshop at Medinfo 2015 with similar IMIA and AMIA WGs on "Ontology and Natural Language Processing" (submitted)
- Workshop on Text Mining for Biocuration, organized with the SIB Swiss Institute of Bioinformatics, Geneva, 3-5 June 2015

### Main Objectives:

- To support nurses and nursing organizations in the European countries with information and contacts in the field of informatics.
- To offer nurses opportunities to build contact networks within the informatics field. This could be accomplished by arranging sessions, workshops and tutorials in connection with the Medical Informatics European (MIE) conferences or by arranging separate meetings.
- To support the education of nurses with respect to informatics and computing.
- To support research and developmental work in the field and promote publishing of achieved results.

### Relevant Activities 2014:

- Our members were very active individually at NI2014 in Taipei Taiwan.
- A meeting is scheduled during MIE 2015 in Madrid to prepare the new working group activity.
- The European Nursing Group has to be reorganized. New President should be nominated and the Countries representatives should be more active. NI2016 Geneva will be best opportunity to re-establish a European Nursing group working together and not only individually.

## EFMI WG PCI

### Primary Health Care Informatics

#### Chair:

Simon de Lusignan

Clinical Informatics and Health Outcomes Research Group

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<http://www.clininf.eu/about/efmipcivg.html>

### Main Objectives

The group aims to be a focus for people to from a primary health care background, or conducting research into primary care to come to EFMI conferences. We aim to put on events, generally workshops at EFMI meetings and use the outputs from these to create a submission to the following years IMIA Yearbook for Medical Informatics. We work in close collaboration with national and the IMIA primary care informatics working groups.

- The aim of the group is to promote and develop primary care informatics as a specialism within health informatics [1]
- The group aims to put on workshops, and where feasible visits to primary health care facilities, at EFMI conferences.
- Increase and promote peer review primary health care informatics literature.
- Our three current themes are: (1) How to model research studies based on routinely collected data [2]; (2) Ontologically rich approached to case finding in routine data [3]; (3) Methods for the direct observation of the use of technology in the clinical consultation [4]; and we have an emerging theme around the use of “Big data.”

### Relevant Activities 2014:

- MEDINFO 2014 Turkey: We supported the Village of the Future, presenting challenges around data use to support quality.
- EFMI STC 2014 Budapest: SdeL was co-chair of the Scientific Committee and presented to the meeting around one of the WG themes, ontologies [5].
- Yearbook of Medical Informatics 2014: The WG developed a paper developed from our workshop in collaboration with the IMIA primary care informatics working group on a use-case driven approach to harnessing big data [6].

### Activities Planned for 2015:

- EFMI MIE Madrid 2015: We plan to explore the opportunities for primary care informatics in using large cross-border datasets for research. The WG is supporting a presentation by the Seventh Framework project TRANSFoRm.
- MEDINFO 2015, Brasil: We plan to run a workshop in collaboration with the IMIA working group and have one accepted panel.
- We have a submission in press for the Yearbook of Medical Informatics in collaboration with the IMIA PCI WG.

### Relevant Publications 2014:

1. de Lusignan S. What is primary care informatics? *J Am Med Inform Assoc.* 2003;10(4):304-9
2. de Lusignan S, Pearce C, Kumarapeli P, Stavropoulou C, Kushniruk A, Sheikh A, Shachak A, Mendis K. Reporting Observational Studies of the Use of Information Technology in the Clinical Consultation. A Position Statement from the IMIA Primary Health Care Informatics Working Group (IMIA PCI WG). *Yearb Med Inform.* 2011;6(1):39-47.
3. Liaw ST, Taggart J, Yu H, de Lusignan S, Kuziemy C, Hayen A. Integrating electronic health record information to support integrated care: practical application of ontologies to improve the accuracy of diabetes disease registers. *J Biomed Inform.* 2014 Dec;52:364-72. doi: 10.1016/j.jbi.2014.07.016
4. de Lusignan S, Liaw ST, Krause P, Curcin V, Vicente MT, Michalakidis G, Agreus L, Leysen P, Shaw N, Mendis K. Key Concepts to Assess the Readiness of Data for International Research: Data Quality, Lineage and Provenance, Extraction and Processing Errors, Traceability, and Curation. Contribution of the IMIA Primary Health Care Informatics Working Group. *Yearb Med Inform.* 2011;6(1):112-20.
5. Liyanage H, de Lusignan S. Ontologies to capture adverse events following immunisation (AEFI) from real world health data. *Stud Health Technol Inform.* 2014;197:15-9.
6. Liyanage H, de Lusignan S, Liaw ST, Kuziemy CE, Mold F, Krause P, Fleming D, Jones S. Big Data Usage Patterns in the Health Care Domain: A Use Case Driven Approach

## EFMI WG PCI

(continued)

## EFMI WG PPD

### Personal Portable Devices

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Applied to the Assessment of Vaccination Benefits and Risks. Contribution of the IMIA Primary Healthcare Working Group. Yearb Med Inform. 2014 Aug 15;9(1):27-35. doi: 10.15265/IY-2014-0016.

The Journal of Innovation in Health Informatics remains the journal of choice for the working group; <http://hijournal.bcs.org/SdeL> is the Editor with other key members of the working group involved with the journal. The journal is now free-full-text online and also free to publish; due to the support of the British Computer Society (BCS) Health. Submission is now via an online submission system.

### Main Objectives:

EFMI Working Group (WG) Personal Portable Devices (PPD) aims at being a European competence center to watch ongoing activities and to provide knowledge to policy makers and architect designers involved in the deployment of projects related to personalized, portable devices (PPD) such as cards, tokens, wearable and portable devices, sensors and actuators, and similar technologies including advanced network infrastructures mainly in the domain of healthcare and welfare. WG PPD links its activities to the domain of Ambient Assisted Living by liaising with the IMIA WG on Smart Homes and AAL.

Furthermore, WG PPD representatives are actively involved in standardization activities in various fields and domains including security, safety, management, ethics, medical devices, and sensor networks. Members of WG PPD act as a kind of ambassador to additional standards developing organizations in various other domains, where aspects of personal portable (mobile) devices are addressed.

Moreover, WG PPD actively supports the organization of meetings of various kinds to disseminate the WG achievements, and to exchange knowledge and information about any topic linked to the interest of the WG PPD members. The main topics the WG PPD is focused on are:

- Personal(ized) Portable Devices, sensors and actuators as well as the underlying networks enable personal and even personalized health service provision going far beyond traditional care procedures. It includes wellness aspects, lifestyle aspects, and safety aspects. Applications from other domains stimulate the respective paradigm shift towards personalized services (addressing citizens rather than patients) also in the healthcare and welfare domain.
- The paradigm shift from health cards to personalized devices and sensor networks for providing personal health services addresses various technical, medical, organizational, legal, and standardization aspects of portable devices (EFMI WG PPD) and related work on sensor networks (ISO/IEC JTC1 SGSN). What EFMI WG PPD is aiming at from a technological viewpoint, are aspects of the present and the near future of personal health service provision supported by devices of any technology, any kind and any size either directly applied to the human body, or placed even inside the body.

### Relevant Activities 2014:

- The WG organized a WG meeting in Munich in February 2014. During the meeting the participants discussed the current state in the area of personal portable devices and their applications, including various aspects of the development and use. In the second part of the meeting the participants discussed possible future joint activities.
- Based on the outcomes of the meeting the core members of the WG prepared a project proposal for the Horizon 2020 program.
- Peter Pharow was involved in preparation and chairing the pHealth 2014 conference in Vienna, Austria.

### Activities Planned for 2015:

- Strengthening of the links to relevant societies and their working groups
- Preparation of the Medtel 2015 conference
- Active participation in pHealth 2015, Vasteras, Sweden

## EFMI WG SSE

### Security, Safety and Ethics

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#### Co-Chair:

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## EFMI WG THI

### Translational Health Informatics

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<http://www.efmi.org/index.php/workinggroups/sse-security-safety-and-ethics>

### Main Objectives:

Speeding up the use of ICT for health care increases the challenge for trustworthiness, security and safety of solutions and infrastructure deployed. The WG aims to promote development, education and training on the field of security and privacy in health care. Close collaboration with other EFMI-WGs and beyond as well as with IMIA WG4 as for securing their ICT solutions for health care.

### Relevant Activities 2014:

- Active involvement in the preparation of pHealth 2014 in Vienna, Austria, in cooperation with the EFMI Working Groups “Electronic Health Records” and “Personal Portable Devices (PPD)”
- Realization of a Joint Workshop at MIE 2014 in Istanbul, Turkey, in cooperation with IMIA Working Group “Security in Health Information Systems” under the work title “Policy-driven management of personal health information for improved care”
- Engagement in the Village of the Future Workshop “Let’s Meet Where The Continents Meet” at MIE 2014, 1 September 2014, Istanbul, Turkey

### Activities Planned for 2015:

- Active involvement in the preparation of pHealth 2015, 2-4 June 2015 in Västerås, Sweden, in cooperation with the EFMI Working Groups “Electronic Health Records” and “Personal Portable Devices (PPD)”
- Preparation of an Interoperability Workshop at MIE 2015 in Madrid in cooperation with the EFMI WG “Electronic Health Records (EHR)” and HL7 International
- Preparation of a Working Group Meeting at MIE 2015 in Madrid
- Transfer of the WG Leadership to Pekka Ruotsalainen

### Relevant Publications 2014:

- Ruotsalainen P, Nykänen P, Seppälä A and Blobel B. Trust-Based Information System Architecture for Personal Wellness. *Stud Health Technol Inform* 2014; 205: 136-140.
- Blobel B, Ruotsalainen P, González C and López D. Policy-Driven Management of Personal Health Information for Enhancing Interoperability. *Stud Health Technol Inform* 2014; 205: 463-467.
- Blobel B, Davis M, Ruotsalainen P. Policy Management Standards Enabling Trustworthy pHealth. *Stud Health Technol Inform* 2014; 200: 8-21.

### Main Objectives:

Translational medicine is a relatively new discipline targeted at removing barriers in utilizing new scientific discoveries in healthcare, moving from bench to bedside, on to communities and finally to policy. The biomedical discoveries need to be accompanied by studies in areas such as health economy as well as sociological and psychological aspects. In order to manage the information generated by each of these disciplines, it is crucial to use advanced informatics that could fuse the various types of data into computerized systems that support the translational processes.

This Working Group will be focused on the health informatics needed for accommodating the translational challenges. In particular, we will target the following goals:

- Explore a proposal for a Translational Health Information Language to underlie translational info-structure (see details in the document “Towards Translational Health Information Language” under the Files tab)
- Demonstrate feasibility of common translational infostructure for the currently distinct environments of biomedical research and health care
- Support studies focusing on informatics underlying translational research and medicine



## EFMI WG THI

(continued)

- Foster better interrelation of bioinformatics and medical informatics
- Discuss major challenges in the new OMICS era with regard to translational health informatics and analytics

### Relevant Activities 2014:

- Gave an EFMI THI WG talk on Translational & Interoperable Health Infostructure - The Servant of Three Masters. Seminar at the Department of Biomedical Informatics, Arizona State University. Phoenix, May 6, 2014.
- Gave an EFMI THI WG talk on Translational & Interoperable Health Infostructure - The Servant of Three Masters. Seminar at the National Library of Medicine, Lister Hill, NIH Campus. Bethesda, May 8, 2014.
- Gave an EFMI THI WG talk on Translational & Interoperable Health Infostructure - The Servant of Three Masters. Grand Rounds talk at Johns Hopkins University. Baltimore, May 9, 2014.
- Gave an EFMI THI WG talk on Translational & Interoperable Health Infostructure - The Servant of Three Masters at the DIA (Drug Information Association) 26th Annual Euro-Meeting, Vienna 2014, March 25-27, 2014.
- Held an EFMI THI WG Workshop introducing the Translational Health Informatics Working Group, at the EFMI STC 2014. Budapest, 28 April, 2014. Held an EFMI THI WG Workshop at MIE 2014, September 2nd, Istanbul .
- Gave an EFMI THI WG talk on Translational & Interoperable Health Infostructure - The Servant of Three Masters. FDA Workshop on NGS Standards. NIH Campus in Bethesda, September 24, 2014.
- Gave an EFMI THI WG talk on Translational & Interoperable Health Infostructure - The Servant of Three Masters. George Washington University Information Systems Seminar, September 23, 2014.
- Held an EFMI THI WG Workshop at the eHEALTH & IMIA Day in WCIT (World Congress on IT) in September 30th, 2014 (<http://wcit2014.org/wp-content/uploads/2014/09/WCIT-eHealth-1509.pdf>).
- Gave an EFMI THI WG Talk at the Barcelona Debate on Big Data in Biomedicine: Challenges and Opportunities, held in Barcelona on November 11-12, 2014 ([http://www.bdebate.org/sites/default/files/archivos/debate/dossier/bdebate\\_bib\\_big\\_data\\_dossier\\_web\\_0.pdf](http://www.bdebate.org/sites/default/files/archivos/debate/dossier/bdebate_bib_big_data_dossier_web_0.pdf)).

### Activities Planned for 2015:

- EFMI THI WG Workshop and business meeting at MIE 2015
- Participate at a cross-group workshop of all WGs related to translational, genomics and clinical bioinformatics at MedInfo 2015
- Co-editing a paper resulting from the above MedInfo 2015 workshop
- Elect a co-chair at the MIE 2015 workshop

### Relevant Publications 2014:

- Contributed to the following IMIA Yearbook: J. Nakaya, M. Kimura, S. Ogishima, A. Shabo, I. K. Kim, C. Parisot, B. de Faria Leao. Future Direction of IMIA Standardization: Report from the IMIA Standardization Working Group. Yearb Med Inform. 2014; 9(1): 105–109.
- Shabo, A. (2014). Translational & Interoperable Health Infostructure - The Servant of Three Masters. EC FP7 Khresmoi Consortium meeting, Vienna. March 26, 2014.