



"eHealth and patient safety - identifying research challenges"

Tuesday, October 10, 2006, 13:00 - 16:00h

Geneva Palexpo, Room C, Geneva, Switzerland

(prior to the World of Health IT conference, <http://www.worldofhealthit.org>)

New and emerging ICTs hold considerable potential to increase patient safety across the whole health value system including clinical research, disease prevention, medical interventions and risk prediction, training & education as well as public health. The objectives of this workshop are to scope the "ICT for patient safety and risk management domain" and to identify true research challenges that could be tackled by national and international research programmes.

In this workshop we would like to consider topics beyond medical errors and adverse events. We suggest to look in a holistic view at newly emerging opportunities to preserve health and improve the quality of acute and longer-term care, also taking into account biomedical and other research results, supported by ICT-based solutions.

The focus is on research challenges only. The expected output would have the form of **prioritised research topics** to be submitted to European Commission as input for future call for proposals.

This by invitation only workshop is organised by the *eHealth for Safety* study (www.eHealth-for-Safety.org) supported by the European Commission "ICT for Health" Unit.



Chair: Ilias Iakovidis, Deputy Head of Unit ICT for Health, DG Information Society and Media, European Commission

Ilias Iakovidis received Ph.D. in 1990 (USA) in applied mathematics thesis on inverse problem in electrocardiography. From 1990 to 1993 he was a researcher at University of Montreal and Montreal Heart Institute. In 1993 he joined European Commission where he currently serves duties of deputy Head of ICT for Health, responsible for research activities in eHealth and biomedical informatics as well as contributing to the successful follow up of the eHealth Communication and

Action Plan COM (2004) 356 of which he was the main co-author. Beyond the office duties he continues to publish articles and books, teach graduate courses on medical informatics in EU and US, and giving keynote lectures at major international conferences. In 2001 he has been elected fellow of American College of Medical Informatics for his contribution to the field.

Speakers:



Introduction: Octavian Purcarea, Scientific Officer, Unit ICT for Health, DG Information Society and Media, European Commission

Octavian Purcarea is a medical doctor with a post-graduate degree in Health Administration (MBA), a general surgery training and several years of experience in the eHealth area. His experience in the private sector in different domains (Health information networks, telemedicine and research in the ICT for Health area) was followed by more than four years as Scientific Officer at the DG INFSO, based in Brussels, Belgium, for the Information and Communication Technologies (ICT) for Health Unit. He is now in charge with the Interoperability of eHealth applications aspects of the eHealth Action plan (see COM (2004) 356).

Title: European Commission policy perspective on ICT supported patient safety



Gabriel Krestin, Chairman of the Research Committee of the European Association for Radiology

Gabriel P. Krestin, M.D. is full professor of Radiology and Chairman of the Department of Radiology at Erasmus MC, University Medical Center Rotterdam, the Netherlands. He graduated from the Faculty of Medicine at the University of Cologne in Germany in 1981 and completed a residency in radiology at the same institution in 1988 including training in radiation therapy and nuclear medicine. After receiving fellowship training in abdominal imaging and MRI at the University of Cologne Dr Krestin completed his PhD thesis (Habilitation) on experimental and clinical applications of fast gradient-echo MR imaging in the abdomen in 1989. He was appointed as staff radiologist and Head of the MRI Center at the Department of Radiology at the University Hospital in Zurich, Switzerland

in 1990. Dr. Krestin became associate professor of radiology and head of the clinical radiology service at the same institution in 1993. Between October 1995 and may 1997 he was acting chairman of the Department of Diagnostic Radiology at the University Hospital of Zürich before he moved into his present position in Holland.

Dr. Krestin is a member of numerous national (DRG, DEGUM, NVvR) and international (ECR, RSNA, ISMRM, ESMRMB, ESUR, SUR, ISSR, ESGAR, AURE) societies, He is the President of ESMRMB and Past President of AURE, chair of the Research Committee of EAR, and serves on the editorial board of several international journals (Radiology, European Radiology, Abdominal Imaging, Investigative Radiology, MagMa, Der Radiologe, Contrast Media and Molecular Imaging, Radiologia Medica (Torino)). He is author of over 180 original articles, of over 60 book chapters, and editor of 7 books some of which have been translated in several languages. His main areas of research are: imaging of the kidneys and adrenal glands, radiological diagnosis of the acute abdomen, magnetic resonance angiography, and more recently cardiac and molecular imaging.

Title: Safety assurance and efficacy of therapeutic & interventional imaging

Abstract: The following issues will be addressed: the role of biomedical imaging in screening and risk assessment, stratification of risk, imaging biomarkers, in vivo tracking of advanced drug delivery systems.



W. Ed Hammond is professor-emeritus at Duke University in their School of Medicine and School of Engineering as well as being an adjunct faculty member for their Fuqua School of Business. Dr. Hammond has had extensive experience designing and implementing EHRs. He helped develop The Medical Record (TMR) and is involved in other health data standards and controlled vocabularies development.

Dr. Hammond served as President of the American Medical Informatics Association (AMIA) and has been on the AMIA Board since its beginning until 2004. He has also served as a member of the Institute of Medicine Committee on Patient Safety Data Stands, was President of the American College of Medical Informatics, chaired the Computer-based Patient Record Institute served as Chair of HL7 on two occasions and as chair of working group 2 (Messaging and Communication) of ISO TC215.

Title: Putting it all together: Integrating data for clinical trials

Abstract: To deliver safe, effective, efficient, low cost and high quality health care lies within the field of information and communication technology. The reusability of data for patient care, research, education, evaluation and reimbursement and the integration of knowledge through decision support will produce quality care at lower costs. Introduction of genomic data into the EHR will improve risk prediction and permit the total personalization of care. With global interoperability, a drug trial becomes the immediate reporting of any adverse event for any patient anywhere who is taking that drug. Health care surveillance is global and occurs in real time. Integrating data for clinical trials (CTs) and reuse of data requires interoperability which requires standards - both technical and semantic content.



Marc Peeters, F.Hoffmann-La Roche Ltd - Pharmaceuticals Division; Innovative Medicines Initiative - Research, External R&D Policy

K.U.Leuven University, Belgium, Electronics Engineer, 1970
Leuven University, Belgium, Bio-Medical engineering, Research Assistant

Head R&D, Scientific & Medical Equipment, JSI company, Belgium

VP, Global Head Pharma R&D Informatics and Instrumentation, Janssen Pharmaceutica, Belgium

VD, Global Head Pharma Lifecycle Informatics, F.Hoffmann-La Roche

VD, Project Manager, Innovative Medicines Initiative,

F.Hoffmann-La Roche, Switzerland, current

Title: The Innovative Medicines Initiative perspective on improving safety along the medication lifecycle

Abstract: The fusion of the disciplines of biology, pharmacology and medicine has given rise to promising emerging models for drug research and development. The Innovative Medicines Initiative has analysed current bottlenecks in the drug treatment lifecycle. Opportunities for ICT contributions yet to be developed, are identified in predictive non-clinical safety, in improved predictive efficacy, in essential data integration across clinical and research boundaries, and in treatment monitoring.



Christian Michael Lovis is a professor of medical informatics at the University Hospital of Geneva. He has a complete education in internal medicine and worked as a clinician for 10 years and a master in Public Health obtained at the University of Washington, Seattle. Since 2000, he directs the Clinical Information Unit of the Service of Medical Informatics, lead by Antoine Geissbuhler. This unit is in charge of developing and deploying the clinical applications, such as Computerized Patient Record (CPR), expert systems for optimal clinical decision-making, computerised order entry, and evaluating impacts, safety, and developing new and original solutions. Christian Lovis is particularly involved in the problem of traceability. He is chair of the International Medical Informatics Association's working group on health information systems and chair of the European Federation of Medical Informatics working group on traceability. He is member of the editorial

board of the Journal of American Medical Informatics Association and of Methods of Information in Medicine.

Title: Computerized Patient Record (CPR) in promotion of patient safety and clinical research: the challenge of traceability

Abstract:

- 1) A GOOD CPR should be the corner stone of patient safety and clinical research
- 2) A GOOD CPR can only be good if it contains structured data AND semantics
- 3) A VERY good umbrella to have semantics (classifications, ontologies, etc...) converge into ONE pertinent framework is to target traceability:
-> Traceability works ONLY if there is a complete integrity of all information chains and that no semantic is lost all along this chain, whatever the actors involved.
- 4) Traceability is a VERY good umbrella because it involves academics (need for semantic) but also industries as suppliers (counterfeit fight, electronic chain production) and end-users (quality of services). Therefore, traceability should be one of the target to improve the
 - bio-physio-socio ... etc concept convergence
 - development of interoperable semantics
 - a strong link between industry/suppliers, academics, care providers and citizens



Leonard Fass graduated with first class honours in Electrical Engineering and was granted a Ph.D. in Materials Science at Imperial College. He has spent the last 37 years in the field of medical technology in R&D and marketing roles.

At GE Healthcare he is responsible for developing collaborations between Industry, Academia and Government.

He serves on the Business and Industry Advisory Committee to the OECD for New and Emerging Health Related Technologies, on the Executive Council of the UK Technology Platform on Nanomedicine and on the Strategy Group on Photonics of the UK Department of Trade and Industry. He also advises Cancer Research UK, Heart Research UK, NICE, SEEDA and the DTI.

Title: Patient centric care - opportunities from technology convergence

Abstract: The trend from acute to chronic disease signifies that patients will need to be managed at the point of care away from the hospital. Wireless and nanotechnology will be the key drivers of remote patient monitoring. Nanotechnology will contribute to the development of ultra small sensors with low power requirements. Changes in patient data could trigger an intervention or ensure compliance with drug therapy.

The huge amount of data that will become available signifies that informatics will play a key role in patient management and therapy choice through equipment such as prognosis workstations integrating data from a variety of sources. Advanced informatics will permit data fusion, population modelling, data mining and adaptive modelling. Body sensor network physiological and contextual data will be incorporated into the Electronic Medical Record to allow an integrated patient management system. The EMR will implement clinical decision support algorithms and link physicians, payers with hospital remote patient monitoring data and could also be used to collate data from point of care treatments used in drug trials.

Predictive modelling will be used to identify trends and stratify risk leading to early intervention and will be used to develop diagnostic algorithms. New applications will include medication reminders, drug prescription refills, patient event reminders/alerts and home care auditing for fraud detection.

Organisation



Veli Stroetmann, MD, PhD, European *eHealth for Safety* study, *empirica* Communication & Technology Research, Germany

Veli Stroetmann has been principal investigator or senior researcher of studies on policy strategies, market research and validation of applications of ICT in the health sector. Presently, she is involved in a study for the European Commission on the impact of ICT on patient safety and risk management in healthcare, and in two projects to support the implementation of the European eHealth Action Plan and to improve interoperability among Member State health systems.

The economic impact of eHealth, healthgrid applications or semantic interoperability are topics of other work.