DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY
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UPDATE ON THE SPECIAL ISSUE: JOURNAL OF MEDICAL INFORMATICS

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This document is a progress report on the special edition of the International Journal of Medical Informatics that is based on six papers prepared for the OECD workshop on “Building a Smarter Health and Wellness Future” in February 2011.

Delegations are invited note and discuss the progress report in the meeting.

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BUILDING A SMARTER HEALTH AND WELLNESS FUTURE
SUMMARY OF KEY MESSAGES FROM THE WORKSHOP

PROGRESS REPORT ON THE SPECIAL EDITION OF THE INTERNATIONAL JOURNAL OF MEDICAL INFORMATICS

1. The OECD held a workshop on "Building a Smarter Health and Wellness Future" in Washington D.C., United States, on 15-16 February 2011. The workshop was organised jointly with the National Science Foundation (NSF).

2. The workshop’s goal was to discuss strategic directions for the future of health and wellness, from both a technological and a policy viewpoint. An initial document summarising the key points at the workshop is available online [DSTI/ICCP/IE(2011)4]. A comprehensive policy report is in preparation. The third, more scientifically detailed output from the event will be issued as a special edition of the International Journal of Medical Informatics in the fall of 2012. The editors are Prof. Michael Rigby of the University of Keele, (United Kingdom); Prof. Susan Graham, UC Berkeley, (United States) and Dr. Elettra Ronchi (OECD). The special edition includes now six papers from the workshop. These papers were accepted for publication following a formal peer-review process. They are further briefly described below:

Achieving the integrated and smart health and wellbeing paradigm: governance and business models

(Karl A. Stroetmann - Empirica Communication & Technology Research, Bonn, Germany)

3. Stroetmann’s paper discusses the importance of moving towards integration of health and wellbeing, and the related supporting services. He illustrates this case with practical examples of best practices in Denmark and Spain, achieved by taking a patient-focused approach to data handling and management. He places enhanced emphasis on the need for new business models, and argues that e-health infrastructures should be costed as a common good, given the plurality of participants in the care process, and the ultimate beneficiaries being the individual members of the population. He raises the importance of intelligent incentives for adoption of e-health solutions, not only to overcome traditional inertia and lack of knowledge, but also because of the hidden costs and losses with any change.

Predicting our data future

(Angelo Rossi Mori, Marta Mazzeo, Gregorio Mercurio, Rita Verbicaro - eHealth Unit, Institute for Biomedical Technologies, CNR, Rome, Italy)

4. Rossi Mori and colleagues, writing from the experience of a national e-health research laboratory in Italy, look at the opportunity of greater patient autonomy and home living provided by remote monitoring and care, and the concomitant necessity for change in professional processes to enable this to occur effectively and safely. They refer to the need for systematic ‘Management of Information, Communication and Knowledge’, integrating both existing data types from multiple domains, and new data types, particularly from monitoring. They emphasize the importance of ensuring consistency of originating contexts and meaning as data are moved between settings, and thus the need for a new substrate of knowledge management in the local health economy, linked to a semantic ‘infostructure’. Given the
high volumes of data likely in the future, they propose degrees of prediction of requirement in specific routine situations in order to present selected initial data to the virtual support team. They conclude that quality of data, and thus of care, depend upon sound policies, organizational models, and culture – these aspects are too easily overlooked in the rush for hardware and software implementation. They identify integration – of roadmaps, control, governance, and information management – as the immediate priority.

Conceptualising and Creating a Global Learning Health System

(Charles Friedman - School of Information, University of Michigan, Ann Arbor, Michigan United States and Michael Rigby - School of Public Policy and Professional Practice, Keele University, Keele, Staffordshire, United Kingdom)

5. Friedman and Rigby address the concept of a Learning Health Systems and what they envisage this concept can achieve (and in specific cases is already achieving). They discuss how in the United States, the current policy and investment impetus to electronic health records and concomitantly their ‘meaningful use’ has created opportunities to build the foundations for health and administrative data reuse for corporate learning – and thus for societal gain. In Europe and other settings there are still islands of innovation, but not yet a coherent culture or impetus to build foundations for a learning health system. This paper considers how to move forward, in the light of the urgent need for smarter health systems where experience becomes the fuel for rapid improvement, and best practices are routinely identified and applied.

Novel organizational frameworks for health IT implementation and use

(Helga E. Rippen, Eric C. Pan, Cynthia Russell, Colene M. Byrne, Elaine K. Swift, and Westat, Rockville, Maryland, United States)

6. The paper by Helga Rippen and colleagues reports on strategies seeking to overcome e-health design and adoption problems. They analyze current theories and models developed outside of health to better predict outcomes, identify the important factors relating to implementation success, and to determine how to mitigate risk. Such models include change management theory, socio-technical theory, socio-cognitive theory, task-technology fit, and technology acceptance. The authors argue that each of the models examined fail, however, to meet the need as they are too specifically focused.

7. The authors argue for the need of a model including the organisational criteria for health IT, and identify five key properties: the Technology itself, Use of the technology, the Environment of its use. The authors conclude that the development of a model integrating these criteria would be valuable in aiding the effective implementation of appropriate e-health, by identifying what would fit best, underpinning the importance of research into contexts and methods and not just technology and applications.

Mobile health applications for self-monitoring and self-management

(Nithya Ramanathan, Center for Embedded Networked Sensing, Department of Computer Sciences University of California, Los Angeles, Dallas Swendeman and W. Scott Comulada, Semel Institute Center for Community Health Department of Psychiatry and Biobehavioral Sciences University of California, Los Angeles, Deborah Estrin, Center for Embedded Networked Sensing, Department of Computer Sciences, University of California, Los Angeles, Mary Jane Rotheram-Borus, Semel Institute Center for Community Health, Department of Psychiatry and Biobehavioral Sciences, University of California, Los Angeles)

8. Ramanathan and Estrin present a study to demonstrate the importance of empirical research to ascertain user acceptance criteria.
9. Their paper addresses the benefits of utilizing mobile phones for self-monitoring, using automated prompts and reminders. Text reminders and prompts by mobile phone are expected to reinforce positive health behaviours, and avoidance of adverse actions, help overcome poor patient compliance - all of which could benefit both the individual and the health system. The authors analyze user acceptance of two groups of individuals – persons living with HIV, and young mothers coping with stress, diet, and exercise to test the hypothesis.

10. They look at what prompts, reminders, and simple data collection would be acceptable, and helpful, and what would not. They ask about benefits, offset by the disturbance or distraction of the telephone interventions. They assess the amount of information persons would find helpful and what would be considered an overload to the point of discouraging participation. While in some situations data capture for feedback was welcomed, other groups feared the loss of privacy (and potential evidential use) of location capture. The authors conclude that discrimination in design and perceptions about privacy are important.

Promoting ICT innovations for Ageing Populations

(Toshio Obi, Waseda University, Graduate School of Asia-Pacific Studies, Tokyo, Japan; Diana Ishmatova St. Petersburg State University, Graduate School of Management; and Naoko Iwasaki ,Waseda University, Graduate School of Asia-Pacific Studies, Tokyo, Japan)

11. Obi and colleagues report on the national situation in Japan with regard to the elderly and ICTs for the older populations. The paper describes initiatives to introduce an e-culture for services to the elderly, and specifically robotics applications. The paper indicates the importance of a steady commitment, of harmonised thinking, and of national focal points and teams to maintain consistency, and learn from outcomes. The paper reinforces the message that success is neither quick nor easy, but that consistent small steps along the path will each contribute to progress.