Preface

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Traditionally, healthcare systems treat people as compliant patients, and deliver care services for patients through a series of discrete care episodes without consideration of user-centred design (UCD) guidelines (Johnson et al., 2005). However, with the rapid advances of scientific technology and changes of social and economic circumstances, the roles of both patients and healthcare system are changing.

First, a rising incidence of chronic health conditions in patients requires patients themselves to take more responsibility for their own care in between clinic visits (Wright et al., 2010). The rapid advances in information technologies, in particular the ubiquitous nature of digital technologies, offer great opportunities to deliver high quality personal healthcare services in real-time. Patients have increasing desires for being involved and participating in the decision making process about their healthcare. Healthcare systems need to address usability and the decision support demands for a variety of patients – old, young and disabled – and other users, such as hospital clinicians and managers. The ageing population and increasing costs of delivering healthcare services in traditional settings and roles are driving factors for reducing the reliance on institutionalised healthcare services. As such, there is an increasing need for user-centred health informatics and approaches that seek to incorporate the experiences of patients, healthcare professionals, families and communities into the design of modern healthcare technologies.

On the other hand, the great challenges facing both patients and healthcare systems also provide opportunities for identifying and exploring new areas and approaches to delivering high quality healthcare services. Technologically, modern healthcare systems need to incorporate advances in ubiquitous computing (Poslad, 2009), human-computer interaction (Soegaard and Dam, 2012)/brain-computer interfacing (Gürkök and Nijholt,

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2012; Zhou et al., 2008), intelligent systems (Bichindaritz et al., 2010; Zhou et al., 2012; Garibaldi et al., 2012), knowledge engineering and data mining (Kendal and Creen, 2007; Zhu and Davidson, 2007; Zhou et al., 2011), and enterprise information systems design (Olson and Kesharwani, 2009), etc., in order to provide required levels of services. Making effective use of these emerging technologies will inevitably lead to improving the qualities of public health and health decisions and major breakthroughs will contribute significantly to improving healthcare quality.

In order to address these challenges, conceptual and empirical work is needed to understand the influences of such factors as personal behaviour, patient demographics, clinical practice and organisational culture, geographical and social contexts of work (Tawfik et al., 2012) and mobility on technology adoption for user-centred health informatics.

This special issue includes seven papers. In the paper 'A decision support system for technological planning and management of field hospitals', Miniati et al. argue that there is currently a lack of formal standards for organising and planning field hospitals (FHs) despite their potential for aiding medical response. The paper provides a systematic review of the literature and technical norms in order to offer support in individualising functional and technical requirements for FH planning.

The paper 'Monitoring and measuring physical activity and sedentary behaviour', by Fergus et al. highlights the need for effective mechanisms for monitoring and measuring physical activity and sedentary behaviour, and, on the basis of this argument, explores how information about physical activity and sedentary behaviour can be collected from different environments. An open and extensible working prototype was developed to evaluate the applicability of the approach.

In the paper 'Practice-centred work analysis: towards ontology-based decision support in cross-boundary e-health', Anya et al. explore the potential of practice-centred analysis of work in explicating knowledge about clinical work and work practices from four broad perspectives – knowledge-level, cultural-historical, socio-technical and context-aware perspectives – for the purpose of building ontologies for representing work practices. This paper shows how a work practice model based on the proposed taxonomy could be transformed into an ontology-appropriate format for representing work practice knowledge and for enabling knowledge sharing and decision support in e-health.

Employing a UCD approach, the paper 'How can user-centred design affect the acceptance and adoption of service-oriented healthcare information systems?' by Themistocleous and Morabito investigates the integration of healthcare information systems (HIS) through SOA and cloud computing. A key contribution of the paper is the addition of new phases to the UCD process aimed to improve the usability, acceptance and adoption of HIS and uncover hidden user needs.

In the paper 'Information technologies: opportunities and challenges in personal healthcare systems', Ma et al. report the preliminary results of studies about applications of modern information technologies to personal healthcare systems, and opportunities and challenges faced in personal healthcare systems. A key contribution of this paper is an approach to harnessing the data derived from technologies, such as sensors, towards the development of personalised quality healthcare systems. This paper presents the use of a number of technological devices to demonstrate the effectiveness of the proposed approach, including the use of EEG signals to construct a brain activity level model for

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measuring the effectiveness of meditation, detect mental fatigue and better understand emotion.

In the paper 'The demise of Google Health and the future of personal health records', Mora presents a review of the failure of Google Health as a technology solution for health information management and discusses its implications for the future of personal health records (PHR). The paper highlights a number of ideas about the overall status of digital platforms for PHR that influenced the low adoption rate of Google Health.

In the paper 'Strategic challenges facing user- and patient-centred e-health in Vietnam', Nguyen et al. present details of the state-of-the-art of current healthcare characteristics, particular to Vietnam, its health information management system (HIMS) and a snapshot of Information Technology and Communication (ICT) development as it pertains to the healthcare industry. A critical evaluation analysis of how the Vietnamese Government has thus far implemented e-health into the healthcare services is also given, with an assessment of the technical, managerial and educational issues that need to be addressed for any future successful development and implementation of e-health in the country.

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