

Managing Ubiquitous Healthcare in the Hospital of the Future: a proposal for the Brazilian health community

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The inefficiency of the healthcare sector in Brazil can be reinforced by the current use of Information and Communication Technologies (ICT) in health providers. A factor that corroborates with this statement is that only a quarter of those providers employ fully electronic health records. In this way, this project consists in propose a model to manage healthcare in hospitals, called uHospital. The focus is on the Electronic Health Record (EHR) using the concepts of mobile and ubiquitous computing [1] applied to the health area. These ideas have been defined by the scientific community using two denominations: ubiquitous health, the monitoring of patients health anywhere and anytime, and ubiquitous healthcare, convenient services to patients that allows the clinical diagnosis [2]. **Objectives:** To employ these concepts, the model proposes the development of a Personal Health Record (PHR), storing all individual information related to a person's health [3]. This PHR should include exams, diagnoses and also data inserted manually. **Methods:** One possibility in this area, from the popularization of mobile devices and the growth of body sensors use (wearable computing), is to allow people to interact with their PHR, using tablets and smartphones, combining the stored information in their health record with vital signs that have been constant monitored. Particularly, this project proposes the use of situation awareness [4] to combine the patients' context, including data being constantly monitored, with information already available in their electronic health record. To fulfill this goal, uHospital employs ontologies based on international and established healthcare standards. **Results:** As a result, we are currently developing a PHR cloud-based architecture that allows inference of risks using web semantics technology, particularly all data are stored in an ontology. The proposal follows international standards such as HL7 CDA, ISO/TR 20514:2005 and ISO/TR 14292:2012. All PHR information can be accessed through mobile devices, such as smartphones and tablets. **Conclusion:** In this way, the proposed model allows the management of ubiquitous healthcare in hospitals, centered in a PHR, which permits the inference of patients' risk situations.

Keywords: situation awareness, electronic health record, ubiquitous healthcare, semantic

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