

Preface

This proceedings volume documents the joint event of the 4th Symposium on Foundations of Health Information Engineering and Systems (FHIES) and the Software Engineering in Healthcare (SEHC) workshop held during July 17–18, 2014, in Washington DC. The goal of FHIES/SEHC 2014 was to discuss recent research innovations and to integrate an interdisciplinary community to develop a research, educational, and industrial agenda for the application of software engineering in the health-care sector.

The ability to deliver timely, effective, and cost-efficient health-care services remains one of the world's foremost challenges. The challenge has numerous dimensions including: (a) the need to develop a highly functional yet secure electronic health record system that integrates a multitude of incompatible existing systems; (b) in-home patient support systems and telemedicine to reduce demand on professional health-care facilities; (c) innovative technical devices, such as advanced pacemakers that support other health-care procedures; and (d) the specific constraints for health care imposed in different societies, particularly developing countries. Responding to this challenge will substantially increase the usage of software-intensive systems in all aspects of health-care services. However, the digitization of health care results in extensive changes related to the development, use, evolution, and integration of health software, especially with respect to the volume, dependability, safety, and security of these software-dependent systems.

The call for submissions attracted 23 submissions from around the world in a number of the areas mentioned in the call for papers. After the usual and thorough peer-review process (papers were reviewed by three or four members of the Program Committee), 16 papers were accepted for presentation in the proceedings of the workshop. The current version of the papers reflect additional feedback given to the authors through additional post-conference paper reviews and conversations that took place at the conference.

The papers cover a range of relevant and interesting topics. There are several papers on security aspects of health information systems. Another set of papers deal with medical devices in cyberphysical systems. Other papers focus on the process of providing health care and monitoring patients. Finally, several papers focus on patient safety and the assurance of medical systems.

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Software Engineering in Health Care

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