17th International HL7 Interoperability Conference & 1st European FHIR® DataThon in Athens, Greece

HL7 Hellas had the great honor to host the International HL7 Interoperability Conference, IHIC 2017, from 22-24 October 2017 at the Technopolis City of Athens, Greece. This was the second time that the Conference was hosted in Greece, the first being in 2008 in Heraklion, Crete. HL7 Hellas with the support of HL7 Germany and HL7 International co-organized the conference and was under the auspices of the Hellenic Ministry of Health.

IHIC events address both practitioners and scientists since they are dedicated to evaluate HL7 specifications against alternative solutions, investigate standards harmonization as well as future directions and needs, new principles, methodologies, and tools. Thus IHIC events complement HL7 Working Group Meetings where the main concern is the specification of interoperability standards.

The focus of the 17th event in the history of the International HL7 Interoperability Conferences was the digital transformation that health systems around the world are currently facing. This year IHIC included the organization of an HL7 FHIR® Datathon, which was the second of its kind in the world, and the first in Europe.

The program of IHIC 2017 started on the 21st and 22nd of October with seminars on standards and on various issues of interoperability in health by distinguished international speakers. Nine tutorials, of two hours each, covered topics related to IHE, IHE XDS, IHE Gazelle, CDA, ART-DECOR, Snomed CT, Security and Privacy, and FHIR®. More information at http://www.ihic2017.eu/content/tutorials

On October 23, the 1st European HL7 FHIR® DataThon "Healthcare Informatics in the Age of

FHIR®" was held. A hands-on lab using tools to use the HL7 FHIR® standard for reviewing and searching for complex health data. DataThon was not a formal tutorial, but instead a hands-on working session where participants used FHIR® to explore informatics topics with simulated clinical data. The event was an opportunity for researchers, analysts and implementers to actively participate in developing FHIR® solutions and exchange data using FHIR interfaces. During the DataThon, FHIR® was used to explore data stores and see what information and opportunities FHIR can uncover. Participants were mainly current and future FHIR developers (programmers, analysts, architects etc.), including also some participants from the medical domain and academic research. The feedback from the more than twenty participants was very positive regarding the actual chosen topics of the event. More information at http://www.ihic2017.eu/content/hl7-fhir-datathon. The results of the DataThon were included in a report sent to the Ministry of Health in Greece for future consideration.

October 23 and 24 were two days filled with prominent speakers presenting all current international standards and interoperability developments. The conference was organized in four thematic blocks. The first conference day begun with the welcome addresses from the scientific program committee, the local organizing committee, HL7 International Chair and CEO, and two keynotes highlighting the situation and strategies for the Greek eHealth Program.

The four thematic blocks included keynotes by Ed Hammond (HL7 US), Bernd Blobel (HL7 Germany), Gora Datta (HL7 US), and presentations from excellent speakers of international scope and high scientific level from Australia, Austria, France, Germany, Greece, Italy, Poland, Portugal, UK, and the US.

The conference program of the second day was concluded with a Workshop and Panel "FHIR: An Implementers' Guide", presented by Charles Jaffe (HL7 International, USA), Robert Hausam (Hausam Consulting, USA), Russ Leftwich (Intersystems, USA), and Rik Smithies (NProgram, Birmingham, UK). More information at http://www.ihic2017.eu/content/program

Twenty-two papers were submitted to IHIC 2017, and the quality of submissions to the conference was very high. After a careful international review by independent reviewers, ten contributions were accepted as full papers published in an IHIC 2017 Special Issue of the European Journal for Biomedical Informatics (https://www.ejbi.org/

FHIR DataThon during the IHIC 2017 in Athens Greece

special-issues/reshaping-healthcare-system.html). Six submissions were classified as Reports and five as Report Abstract. Both groups were published in the IHIC 2017 Proceedings book (ISBN 978-960-99062-3-4).

The J. W. Dudeck Award for the best new work of a young scientist under 35 years old went to the French Abderrazek Boufahja for his excellent work "On the evaluation of HL7 CDA R2 Documents Richness and Validation Reliability", coauthored by Eric Poiseau (France).

The conference had 95 delegates from 11 countries and achieved its goals of playing the role of a link between science, research and practice to exchange experiences related to HL7 and interoperability in the domains of health and social care. We thank everyone involved in its success: IHIC 2017 attendees, authors, speakers, reviewers, session chairs, tutors, panelists, sponsors, organizers, members of the organizing committee and the co-chairs. More information at www.ihic2017.eu

The organization of IHIC 2018 will be held in Portsmouth in the UK on July 11-12, 2018. For more information on IHIC 2018 visit the conference web site ar http://ihic.info.

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The Andalusian Health Service EHR

by Bidatzi Marin Bastida

The Andalusian Health Service (SAS) serves a population of 8.5 million with a workforce of around 100,000 employees, 1500 thousand primary care facilities and 40 hospitals. SAS makes extensive use of IT for clinical information management. The EHR system, code-named Diraya (knowledge in Arabic), is available region-wide at any point of care.

Diraya is an integral EHR covering all relevant aspects of care: primary, emergency (ER and mobile ICUs) specialized care (outpatient and inpatient), appointment scheduling, nursing, surgery planning, e-prescription, lab testing and diagnostic imaging.

The architecture of Diraya follows a standards-based approach where the different applications exchange information through clearly defined interfaces. Applications are domain-specific and as decoupled from the rest of the eco-system as possible.

Diraya features a two-layer structure: some applications have a regional scope and others are hospital-centric (the information they record is still retrievable region-wide though). Thus, services such as the MPI, appointment scheduling, primary care, the main EHR registry, LIMS, RIS, e-prescription run at a regional level whereas applications like the clinical workstations run at the local-hospital level.

The EHR is structured as a single-registry with federated storage. A single regional application maintains the health record tree for each person. A patient's record includes references, including the episode of care, for each of the documents and objects that are stored elsewhere in the applications that created them. These documents are requested individually as needed from any of the clinical applications that display patients' health records. This setup aligns with the model described in the XDS IHE profile.

The exchange of information between the elements that comprise the EHR is managed through an Enterprise Service Bus (ESB). This infrastructure also follows the two-layer topology: one level for intra-hospital communication and one level for region-wide communication. Information exchange is modeled on a Service Oriented Architecture based on standard SOAP Web Services and HL7 messaging (v2.5 XML).

In addition to the standard web-services portfolio based on HL7 v.2, SAS is currently rolling-out