Standard-based Data and Service Interoperability in eHealth Systems

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Abstract

International standardization in information representation, organization, and dissemination are meant to eliminate the discrepancies in communication among participating organizations and institutions in a particular domain. The management of domain information will then allow different participants to integrate their legacy information or application servers to a nation-wide network and use widely approved services to communicate their proprietary data and services with a large group of clients. In this context, traditional healthcare information systems require fundamental re-engineering to new network-centric environments in order to reduce the huge costs of healthcare while maintaining the expected quality of public health. This integration using new HL7 v3 standards and leading-edge information technologies will be the initial steps for shifting towards an interoperable healthcare environment. This paper aims at addressing new challenges in standard-based interoperability provision among legacy healthcare information systems, while adhering to international and national standards for data and service representations. We introduce a framework to employ healthcare standards and clinical terminology systems to achieve semantic interoperability between distributed Electronic Medical Record (EMR) systems. A real world case study for integration of a Clinical Decision Support System (CDSS) with the EMR of a specialist will be presented.

KEYWORDS: Legacy System; Migration; Interoperability; Healthcare; HL7; Standardization; Decision Support System.