

Interoperability of Data and Knowledge in Distributed Healthcare Systems

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Abstract

In this paper we propose a knowledge management framework for distributed Healthcare systems consisting of data- and knowledge-bases that contain patient data and mined knowledge within Healthcare institutions. The framework takes advantage of data mining techniques, enabling technologies, and standards to provide decision making support for the Healthcare personnel. The application areas of the new framework range from clinical care to administrative decision support. With the guidance of the Healthcare researchers the available patient data is mined off-line to extract meaningful knowledge from medical data that can be shared with other institutions through XML based documents (known as PMML) to achieve knowledge interoperability among different heterogeneous Healthcare systems. Data interoperability is achieved through an XML-based clinical data representation (HL7 CDA) to encode patient data. A clinical guideline and a logic module will receive inputs form both PMML and CDA to enable decision making at a higher level of knowledge management based on patient data and mined knowledge. We also applied the proposed framework on three clinical case studies.