MEDINFO 2007
HISA Ltd Australia
© 2007 The authors. All rights reserved.

Preliminary Design of the Interoperable EHR Data Architecture in Korea

Myoung-Ju Jeon[a], Ein-Jeong Hwang[a], Young-Hwan Choi[a], Yoon Kim[ab]

[a] *Center forInteroperable EHR, Korea*
[b] *College of Medicine, Seoul National University,Korea*

Abstract and objective

Today, interoperable EHR architecture is being developed by key advanced countries but at present time, it remains as a high level conceptual model. In Korea, the center for interoperable EHR is currently developing Interoperable EHR architecture[1] to implement efficient national healthcare information network (NHIN). This study presented preliminary level design to define data architecture of interoperable EHR. To this end, the data model derived from this study should be in accordance with international standards such as HL7 Reference Information Model or openEHR Archetype Model.

Keywords:

National Healthcare Information Network, interoperable electronic health record, data architecture

Introduction

International standards related with interoperable EHR are focused on lifetime health record and ensuring interoperability, their difference depends on the use of information model for EHR. According to the experience of countries including US, UK, Australia and Canada, various approach methods have been adopted. Research aiming to obtain semantic interoperability of EHR solution based on standardized terminology is underway, however none have been introduced in detail regarding health and medical related data actually exchanged between EHR solutions yet. The purpose of this study is to define the information to be shared in EHR architecture and to select data elements for providing the NHIN service.

Methods

At first, we surveyed and analyzed the shared clinical information elements in several domestic and foreign studies. In domestic studies conducted in 2000 and 2003 as part of a healthcare information project, standardized data elements were proposed for clinical information exchange among hospitals. Then we added the data elements abstracted from international researches, HealthConnect in Australia[2], Continuity Care of Record (CCR) in US, and the Japanese Set of Identifiers for Medical Record Information Exchange (JMIX) in Japan. In addition, we carried out research on the scope of clinical data exchange between the main hospital and the branch hospital in Korea and found out how they exchange patient referral and result for referral, discharge summary, clinical finding, and medication information. Secondly, clinical information was classified and derived from requirements in EHR business architecture. Also general requirements and information to support data domain classified from the EHR infrastructure were extracted. Lastly, we classified these data elements from above two steps as common and essential data elements.

Results

The sharable data elements in EHR system were suggested in two aspects. One is for the essential 27 data elements including patient demographic information and clinical information such as chief complaint, lab findings, principle diagnosis, etc. regarding discharge summary. The other is 29 information scopes and 377 data elements to exchange healthcare information. The result does not confirm EHR data architecture as the data model for Korea but proposes data items for shared clinical information through verifications made by expert group and survey on domestic medical institutions in the future. Furthermore compliance with international standard shall be considered and ultimately the logical level shall be detailed.

Acknowledgment

This study was supported by a grant of the Korea Health 21 R&D Project, Ministry of Health & Welfare in Republic of Korea (A050909).

References

[1] Center for Interoperable EHR, EHR Architecture Conceptual Modeling V1.0. Korea, 2006.
[2] Linda May, Eric Browne, Lorraine Rayson, Lorraine Anderson, Stephen Chu, Part B – Health Event Summaries, HER Lists and EHR Views. Clinical Information Project in DoHA(Department of Health and Ageing), 2004