Information Lifecycle Management in Healthcare Environment: An Integrated Approach

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Abstract

The scope and structure of health information is complex; so as the management of it. Since 1995, the Hospital Authority (HA) has accumulated 8.9 million patient's records in her Clinical Management System (CMS). There is an increasing demand for sharing clinical data across various CMS modules. HA has developed a model to manage her information throughout its lifecycle. The model includes developing standardization principles to ensure the semantics of the captured data is being preserved; establishing a trio-party governance structure being led by clinicians, health informaticians and information technologists; building generic services, defining roles and workflow to facilitate data capturing, retrieving, transferring, and reporting. With this model, the HA has successfully developed an efficient and effective mechanism to manage her valuable asset and support meaningful reuse of her clinical data.

Keywords:

Information lifecycle management, Information architecture

Introduction

With the growing demand in data retrieval to facilitate reporting and analysis, and to avoid duplicated effort in repeated documentation, the Hospital Authority (HA) has developed an integrated model to manage the lifecycle of her health information.

Managing Information Lifecycle in HA

A trio-party governance structure involving clinicians, health informaticians and information engineers is set up to ensure the definition of the captured data would be well defined and correctly interpreted. Principles are developed to facilitate standardization of clinical data captured at various sources. Various services which are interfaced with each other are developed, including :

- Generic Clinical Documentation (GCD) Service - an interactive design tool to facilitate creating an electronic form
- Information Architecture Management System (IAMS) - a generic service interfaced with the GCD service for defining the metadata and definitions of various data elements of the electronic GCD form
- Terminology Service (TS) - a runtime service interfaced with IAMS to facilitate clinicians to search the appropriate diagnoses and procedures, and generate the appropriate codes from the defined classification system(s)
- Data Service – a service interfaced with the GCD service to retrieve / send the captured data from / to the clinical data repository and data warehouse to / from the electronic form
- Clinical Data Analysis & Reporting System (CDARS) – a tool to facilitate the clinicians to download, explore and report patient data that captured from various CMS modules the electronic forms. It reads the definition tables which are being kept in IAMS.

The information management lifecycle is an iterative process. Clinicians and management are able to identify further improvement of the form or requirement of developing a new form after reviewing the data which are now made available at their finger tips shortly after the form is implemented. This starts another development cycle again.

Conclusion

Health record should be integrated, so as the management of health information and its metadata. The integrated approach supports semantic interoperability and facilitates an efficient and effective process in providing data for record review and data analysis.