Data Adjudication Architecture for Health Information Exchange (HIE): a Case of Adjudicating and Storing Hemoglobin A1C Values

Pallavi Ranade-Kharkar, MS1,2, Darren K. Mann, BS1, Sidney N. Thornton, PhD1,2

1Intermountain Healthcare, Salt Lake City, UT; 2Department of Biomedical Informatics, University of Utah, Salt Lake City, UT

Introduction
- Increased participation in Health Information Exchange (HIE) has created the opportunity to integrate data from external sources into organization’s own workflows.
- Lack of proper data adjudication of incoming data can lead to erroneous data unfit for use in the clinical setting.
- In this project, laboratory data were analyzed from Intermountain Healthcare’s Enterprise Data Warehouse (EDW) to identify error patterns.
- The analysis informed design requirements for data adjudication inferring solution.

Materials and method
- Hemoglobin A1C (HgbA1C) result records (n = 2.2 million) were categorically analyzed.
- Data sources include Intermountain and non-Intermountain laboratories as well as manually entered point-of-care laboratory results.

Future research
- Implement the CDS Data Adjudication rules for all categories of interest for HIE data.
- Analyze effects on quality and cost of care.

Discussion
- The proposed architecture and data flow are designed to transform raw HIE data into trustworthy data and improve data integrity by examining data quality attributes of physiological compatibility, completeness, and redundancy.
- By filtering out previously processed data and retaining only new HIE data, the architecture eliminates duplicate processing of discrete data from incoming documents, thereby improving efficiency of data adjudication.
- Data adjudication reduces the burden of manual resolution. Data that may require manual review is sent for resolution using HIE workflows.
- Flood of data from HIE may overwhelm EHR systems and may not support optimal care. The proposed architecture suggests an approach to integrate HIE data focusing on episodic care details into a patient’s longitudinal data record.

Conclusion
- Data exchanged in HIE may not always be trustworthy.
- Proposed architecture for Clinical Decision Support Data Adjudication has the potential to improve trustworthiness and integrity of data in HIE data integration.

Contact: Pallavi Ranade-Kharkar (pallavi.ranade@imail.org)

Reference
1. Care Connectivity Consortium (http://www.careconnectivity.org)