

## Structuring and Visualizing Healthcare Claims Data Using Systems Architecture Methodology

**Authors :** Inas S. Khayal, Weiping Zhou, Jonathan Skinner

**Abstract :** Healthcare delivery systems around the world are in crisis. The need to improve health outcomes while decreasing healthcare costs have led to an imminent call to action to transform the healthcare delivery system. While Bioinformatics and Biomedical Engineering have primarily focused on biological level data and biomedical technology, there is clear evidence of the importance of the delivery of care on patient outcomes. Classic singular decomposition approaches from reductionist science are not capable of explaining complex systems. Approaches and methods from systems science and systems engineering are utilized to structure healthcare delivery system data. Specifically, systems architecture is used to develop a multi-scale and multi-dimensional characterization of the healthcare delivery system, defined here as the Healthcare Delivery System Knowledge Base. This paper is the first to contribute a new method of structuring and visualizing a multi-dimensional and multi-scale healthcare delivery system using systems architecture in order to better understand healthcare delivery.

**Keywords :** health informatics, systems thinking, systems architecture, healthcare delivery system, data analytics

**Conference Title :** ICBCBBE 2017 : International Conference on Bioinformatics, Computational Biology and Biomedical Engineering

**Conference Location :** Boston, United States

**Conference Dates :** April 24-25, 2017