

Developing Visual Thinking in the Electronic Health Record

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Abstract

The purpose of this vision paper is to identify how data visualization could transform healthcare. Electronic Health Records (EHRs) are maturing with new technology and tools being applied. Researchers are reaping the benefits of data visualization to better access compilations of EHR data for enhanced clinical research. Data visualization, while still primarily the domain of clinical researchers, is beginning to show promise for other stakeholders. A non-exhaustive review of the literature indicates that respective to the growth and development of the EHR the maturity of data visualization in healthcare is in its infancy. Visual analytics has been only cursorily applied to healthcare. A fundamental issue contributing to fragmentation and poor coordination of healthcare delivery is that each member of the healthcare team, including patients, has a different view. Summarizing all of this care comprehensively for any member of the healthcare team is a “wickedly hard” visual analytics and data visualization problem to solve.

This vision paper was accepted and will be presented at MEDINFO 2017. No policy posted on the MEDINFO website limits the research highlight.

The significance of this paper to the WISH community is the theoretical model combining, Data, Models, Knowledge and Visualization to allow users to explore the health data. Most of the reviewed articles in the paper, combine all facets into a single visualization. By making separate components of visual data exploration explicit, researchers and clinicians can change the underlying models, the visualization, or knowledge to allow better design and research. As the EHR's continue to be used by different health professionals, the health knowledge of all the users will be different and the expectation that all will use the same interface will lead to additional challenges going forward.