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Electronic Health Records Functionalities and Quality of Care: Conceptual Model and Research Agenda

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TREO Talk Paper

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Abstract

There currently exists a rich stream of literature dedicated to exploring how different electronic health records (EHR) functionalities, such as Clinical Decision Support Systems (CDSS), Computerized Physician Order Entry (CPOE), and Health Information Exchange (HIE), improve various aspects of hospital performance. The purpose of this work is to summarize current state of the art and present a conceptual model that demonstrates dependencies between different functionalities of EHR and their impact on healthcare quality measures. In addition, we are creating a research agenda for future studies.

We searched studies published between 2010 and 2020 in databases such *Business Complete Source*, *Web of Science*, and *Google Scholars*. Our initial search covers 52 studies published in journals such as Information Systems Journal, Health Affairs, Journal of Health Economics, Production and Operations Management, Decision Support Systems, Management Science, Journal of Operations Management, and others. We are also using a snowball sampling to identify more studies for our conceptual model. Identified studies indicated the relationships between different functionalities of EHR and various measures of quality of care.

We used Donabedian's (2005) approach of evaluating the quality of care to classify different areas in hospital improvements that we identified in our literature review. Donabedian's framework categorizes quality of care measures by three groups: structure, process, and outcomes. Structural measures reflect the context in which healthcare service are delivered. These are mainly physical and organizational characteristics of hospitals. Furthermore, process measures reflect the interactions between patients and health providers. These measures demonstrate how care is delivered and the manner is which care is delivered. Finally, outcome measures indicate the impact of healthcare services on patients' health status.

Our conceptual model delineates the relationship between EHR functionalities, such as CPOE, CDSS, and HIE, and different structural measures (healthcare spending, return on investment, hospital efficiency, patient safety events), process measures (healthcare delivery, productivity of healthcare providers, patient care coordination, process compliance), and outcome measures (readmissions, patient mortality, patient morbidity, and patient satisfaction). Various theoretical perspectives were used to guide most of the studies: transaction cost economics, dynamic capabilities, resource-based view, task-technology fit theory, cybernetic control theory, information processing theory, agency theory, adaptive structuration theory, and others. We conclude this conceptual work by presenting a research agenda for future theoretical and empirical studies.

References

Donabedian, A. 2005. "Evaluating the Quality of Medical Care," *The Milbank Quarterly* (83:4), pp. 691-729.