



Case Study: Implementation of Electronic Health Record Using Rogers's Diffusion of innovation Theory

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In 1999, the Institute of Medicine (IOM) reported that "at least 44,000 people," and perhaps as many as "98,000 people," were dying in United States hospitals each year as a result of medical errors that could have been prevented. The IOM identified six goals to guide national initiatives to adopt electronic health records: safety, effectiveness, patient-centeredness, timeliness, efficiency and equity (Ball, Smith & Bakalar, 2007). President Obama signed the HITECH Act in 2009 to transform the health care system to provide quality, safe, affordable, and accessible care allocating around \$30 billion for health information technology infrastructure and electronic health record adoption. The purpose of this project was to conduct a case study research in the implementation of an electronic health record (EHR) on the Pre-Admission Units and Day Surgery Centers in an acute care hospital. The intended outcome of this project was to gain insight how technological advances are diffused across nursing units and to determine the effect of the use of an EHR on nurses' attitudes and users' satisfaction before and after system implementation. Understanding the nurses' attitude and satisfaction can provide information on how to formulate effective strategies in the implementation of an EHR, thus, ensuring an EHR that supports patient quality care and improvement of patient outcome. Rogers's Innovation-Diffusion Theory was used to guide the study. Case study research permitted an in-depth investigation of the impact of diffusion of EHR as a technological innovation and bounded phenomenon that was undertaken in real life situations. Multiple methods of data collection and analysis and methodological triangulation promoted rigor in the case study. Survey questionnaires, interview, time and motion study, and documentary data comprised the data sources for secondary analysis. Data were reduced to conceptual groups so that conclusions could be derived and a case description developed. There were no statistically significant findings on the paired samples T-test comparing pre and post mean scores on the attitude scale ($t=1.938$, $p = .094$ (sig. 2-tailed)). Post- implementation mean scores were correlated positively with years worked as a nurse ($r = .739$) and better attitudes towards computerization with years worked at this hospital ($r = .786$). Common themes in the content analysis of open ended questions revealed that EHR was easy to use and accessible and that it improved patient safety. The interview provided more in-depth analysis to understand the diffusion and use of the EHR and its impact on nursing practice and patient care from nurses' perspectives. Initially, unfamiliarity with the system was associated with some resistance to using the EHR. Overall, nurses reported a positive experience and believed that the EHR promoted safer and better outcomes. The time and motion study findings revealed variations and inefficient time practices that could be reduced/eliminated to improve nursing workflow and generate cost savings. Results of this case study will be valuable to streamline the EHR, improve nursing workflow, and develop/plan effective implementation strategies for the diffusion of the EHR throughout the hospital.

