The Association of Electronic Health Record Use on Quality of Care for Patients Diagnosed with Type 2 Diabetes

Rini Rachmawaty
Makassar, Indonesia

BSN, University of Indonesia, 2002
Professional Nurse, University of Indonesia, 2003
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A Dissertation presented to the Graduate Faculty of the University of Virginia in Candidacy for the Degree of Doctor of Philosophy in the Graduate School of Arts and Sciences

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ABSTRACT

Purpose: Diabetes affects 25.6 million adults in the United States. This longitudinal secondary data analysis aimed to determine whether the use of electronic health records (EHRs) produces changes in quality of care (process and intermediate outcomes) for the same adult patients diagnosed with type 2 diabetes over time.

Methods: This study used data from a CDR and EpicCare system that were queried from pre-EHR, one year post-EHR, and two years post-EHR. The sample included patients aged 18-75 years diagnosed with type 2 diabetes who had outpatient visits at the three time points. Quality of diabetes care was assessed using a guideline developed by the National Diabetes Quality Improvement Alliance in 2005. Process measures included frequency of HbA1c, BP, and lipid profile tests documented for each patient and proportion of patients who had at least one process measure documented at each time point. In addition, intermediate outcome measures included levels of HbA1c, BP, and lipid profile achieved by each patient and proportion of patients who achieved the recommended levels of HbA1c, BP, and lipid profile at each time point.

Results: Quality of diabetes care for the 1,201 patients differed pre- and post-EHR. In process measure, the frequency of BP control and the proportion of patients who had at least one BP measurement documented increased one year and two years post-EHR. In intermediate outcome measures, the proportion of patients who achieved total cholesterol <170 mg/dL improved two years post-EHR. However, patients were less likely to achieve HbA1c ≤7% and SBP <140 mmHg post-EHR. Moreover, levels of HbA1c, BP, and HDL-C of the same patients increased over time. Age, sex, race, and type of health insurance predicted the changes in HbA1c, BP, and HDL-C post-EHR.

Conclusion: EHR use improves the BP documentation and promotes changes in clinical staff and patient behavior due to better data at the point of care. Further studies to examine the effect of other comprehensive EHR components (e.g., clinical decision support system) on quality of diabetes care are recommended. Suggestions for hospital administrators to consider EHR adoption and to add nursing care elements to their EHRs are also offered by this study.

Keywords: electronic health records, quality of care, type 2 diabetes
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