University of Victoria | Graduate Studies

Notice of the Final Oral Examination
for the Degree of Doctor of Philosophy

of

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Graduate Certificate, LATHE (University of Victoria, 2016)
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"Evaluating a Post-Implementation Electronic Medical Record Training Intervention for Diabetes Management in Primary Care"

School of Health Information Science

Tuesday, December 4, 2018
9:00 A.M.
Clearihue Building
Room B007

Supervisory Committee:
Dr. Karen Courtney, School of Health Information Science, University of Victoria (Co-Supervisor)
Dr. Aviv Shachak, Institute of Health Policy, Management and Evaluation, University of Toronto (Co-Supervisor)
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Dr. David Capson, Dean, Faculty of Graduate Studies

Abstract

Electronic medical records (EMR) can be used by Primary Care Physicians (PCP) to support diabetes care in a proactive and planned way. Although the majority of Canadian PCPs have adopted an EMR, advanced use of the EMR is limited. The literature widely suggests that end-user-support (EUS) is a critical success factor for increasing use of advanced EMR features, such as diabetes registries and recalls or reminders. Training is one type of EUS that is intended to help PCPs to better use their EMRs. However, many PCPs receive little or inadequate EMR training, especially following the implementation of an EMR. Specifically, there is a dearth of literature on the use of video tutorials to improve EMR use. The purpose of this mixed methods (QUAN(qual)) study was to evaluate the potential for EMR video tutorials to improve process measures for type 1 and type 2 diabetes care for PCPs using OSCAR EMR in British Columbia. EMR video tutorials were developed based on the Chronic Care Model, value-adding EMR use, evidence-based video tutorial design, clinician-led EMR training, the Structure-Process-Outcome Model, and the New World Kirkpatrick Model. In total, 18 PCPs participated in the study, and 12 of them participated in 21 follow up interviews. The study results demonstrated that the study intervention and Hawthorne effect elicited a statistically significant increase in EMR feature use for diabetes care, with a large effect size (i.e., $F(3, 51) = 6.808$, $p < .001$, partial $\eta^2 = .286$). Multiple barriers and facilitators to applying the tutorial skills into practice were also found at the physician, staff, patient, EMR, and policy levels, such as time, funding, computer literacy of staff, patient responsibility, and user-friendliness of the EMR. Three pairs of PCP characteristics had a strong and positive association, which was statistically significant: (1) age and years of practice; (2) years of experience using OSCAR EMR and number of EMRs used; and (3) computer skills and EMR skills. PCPs' years of medical practice was statistically significant in predicting their baseline use of the EMR for diabetes care. Graphical trends indicated that higher increases in mean composite EMR use (MCEU) score for diabetes care over the duration of the study were associated with PCPs with the following characteristics: (1) being female, (2) being aged 35-44, (3) being from Vancouver Island, (4), having less than four years of medical practice, (5) having 3-4 years of EMR experience, (6) having 1-2 years of OSCAR EMR experience, (7) using four EMRs, and (8) having prior post-implementation EMR training. Details of the effects of physician characteristics on MCEU score are described in detail below. This small-scale efficacy study demonstrates the potential of CCM-based EMR video tutorials to improve EMR use for chronic diseases such as diabetes. A larger-scale effectiveness study with a control group is needed to further validate the study findings and determine their generalizability.