



**University  
of Victoria**

Graduate Studies

Notice of the Final Oral Examination  
for the Degree of Master of Science

of

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BNSc (Queens University, 2008)

**“The Impact of Computerized Provider Order Entry on Nursing Practice”**

School of Health Information Science

Friday, July 29, 2016

1:00PM

Human and Social Development Building  
Room A202

Supervisory Committee:

Dr. Elizabeth Borycki, School of Health Information Science, University of Victoria (Supervisor)

Dr. Andre Kushniruk, School of Health Information Science, UVic (Member)

Dr. Tracey Schneider, School of Health Information Science (Member)

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Dr. Michael Prince, School of Public Health & Social Policy, UVic

Chair of Oral Examination:

Dr. George Tzanetakis, Department of Computer Science, UVic

## **Abstract**

The Institute of Medicine reported seven thousand deaths annually due to medication errors. It is estimated that two out of one hundred admissions experience a preventable adverse medication event resulting in an average cost of \$4,700 per admission, which is \$2.8 million dollars annually for a 700 bed hospital (Institute of Medicine, 1999). In Canada, medication related errors were identified as the most common adverse event (Canadian Institute for Health Information, 2007). A medication error is “any error that occurs during the process of history taking, ordering, dispensing, administering and surveillance of a medication regardless of whether harm occurred to the patient or if there was potential harm (Eslami, Abu Hanna, & de Keizer, 2007; Ong, 2007). Computerized provider order entry (CPOE) can play a vital role in the prevention of medication errors in the drug ordering stage. It was reported that the occurrence of Adverse Drug Events (ADE) was decreased by fifty-five percent with the addition of CPOE system (Berger & Kichak, 2004). However, the literature review on CPOE impact is heavily focused on the physicians’ perspective (Eslami et al., 2007; Reckmann, Westbrook, Koh, Lo, & Day, 2009;). Nurses play a significant role in the medication process, as traditionally, nurses are involved in all the medication process stages. Research on the impact of CPOE in the entire medication process is still lacking (Househ, Ahmad, Alshaikh, & Alsuweed, 2013). Understanding the perspective of nurses on the impact of CPOE in their work will increase awareness and understanding of CPOE use among health care professionals and health informaticians. This research adopts a grounded theory approach to explore the question of “how do nurses perceive the impact of CPOE on the medication process and on collaborative practice?” Ten participants were interviewed and out of the ten, eight participants were observed during a portion of their work. The information collected was analyzed using a constant comparative method. Participants described that the CPOE supported legible order communication between care providers and departments. CPOE use removed the requirement to transcribe orders to the medication administration record, as well as, the necessity to fax the order sheet to the pharmacy. However, in the ordering stage the nurse is also involved in providing information for order decision-making. Nurses discuss probable medication orders in cases of urgent situations, or nursing assessments of the patient. In this decision-making, the information requirements of nurses involve not only the medication information, but also information about other orders such as diagnostics, laboratory, and patient care orders. Future CPOE design and CPOE implementations should consider including mobile devices, alerts, and workflow modeling with the nursing information needs.