



Learning and teaching in clinical practice

## Teaching successful medication administration today: More than just knowing your 'rights'

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### ABSTRACT

Medication administration is an important skill taught in undergraduate nursing programs. Student learning for this activity includes not only how to prepare and administer medications, but also includes interventions such as patient and family teaching. Students also are taught a series of 'rights' in order to prevent medication errors. There are many factors, both personal and system related, which contribute to medication errors in the health care environment. The purpose of this article is to provide strategies for teaching students medication administration that encompass the multiple factors involved to ensure safe practice. This opinion paper is based on the authors' considerable years of teaching experience (35 years clinical setting and classroom teaching with senior students in final year of baccalaureate program for 1st author and 16 years total for co-author).

Recommendations put forth by the authors are: a) leveling students' clinical experiences in administering medications to include understanding of system factors, b) structured scenarios and purposeful linking of theory to clinical courses to advance students' knowledge and skills related to medication administration as they progress through the program, 3) revisiting math skills.

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### Background

The education of baccalaureate nursing students prepares them to provide nursing care in a complex health care environment by way of a sound knowledge base in nursing, biomedical sciences and psychosocial literature and through opportunities to demonstrate clinical competence in a variety of skills and interventions required for patient care.

In the acute care setting, administering medications is an important skill for nursing students to acquire as it is a major facet of nursing care. Along with preparing and administering medications, nursing care includes verifying treatment plans within the patient context, documentation, monitoring for side effects as well as patient and family teaching about medications.

Traditionally, when errors have occurred in the administration of medications, the focus has been on the nursing component and the remedial strategies needed to ensure adherence to the process of

medication administration. More recently, the attention to prevention of adverse events has resulted in a multifactorial approach that recognizes the complexity of the system in which the nurse works and in which the patient receives care. This paper aims to provide strategies for teaching students medication administration that encompasses the multiple factors involved to ensure safe practice.

### The patient safety movement and medication administration

Patient safety has become a major focus in health care. For example, in Canada, attention to patient safety is at the forefront of hospital care today (Baker et al., 2004). Patient safety refers to the reduction of unsafe acts within the healthcare system (Canadian Patient Safety Institute, (safety competencies)). The Canadian adverse events study by Baker et al. (2004) cited that of the almost 2.5 million hospital admissions per year in Canada, at the time of their study, 185,000 Canadians had experienced adverse events annually while hospitalized (7.4%) and, of those, 70,000 were presumed to be potentially preventable (p.1678). Adverse events were defined by these authors as "an unintended injury or complication that results in disability at the time of discharge, death or prolonged hospital stay and that is caused by health care management rather

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than by the patient's underlying disease process" (Baker et al., 2004, p. 1679).

Medication errors are one of these adverse events. Chang and Mark (2009) have defined a medication error as "wrong dose, wrong patient, wrong time, wrong drug, wrong route or omission" (p. 72). A broader definition is that "a medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professionals, patient or consumer. Such events may be related to professional practice, health care products, procedures and systems, including prescribing; order communication; product labeling, packaging and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use" (National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP). Therefore, errors can occur at various points in the process of prescribing and administering medications.

In the USA, the Institute of Medicine (2006) indicated that one medication error occurs daily for every hospitalized patient. Medication errors contribute to 7000 inpatient deaths in the United States per year (Flynn et al., 2012). Meanwhile, in the United Kingdom, the National Health Service Commissioning Board Authority publishes 'Organisation Patient Safety Incident Data'. This data is submitted to the National Reporting and Learning System (NRLS) with the National Patient Safety Agency. From October 1, 2011–March 31, 2012 there were 612, 414 patient safety incidents and of these 11% were medication incidents (National Patient Safety Agency).

Nurses play a significant role in patient safety related to medications due to their central role in their administration. Armitage and Knapman (2003) have estimated that as much as 40% of a nurse's clinical time is related to medication management. Increased patient acuity, shorter hospital stays, and increased volume of medications that patients are prescribed all contribute to the complexity of providing care to patients. Nurse educators must prepare their students for the reality and complexity of the health care environment and the multitude of factors contributing to risk for medication errors.

### Factors contributing to medication errors

Multiple factors must be considered in ensuring patient safety when administering medications and in examining the prevention and management of medication errors. These factors include such areas as team communication, complexity of care processes, as well as organizational structures and policies. There are individual factors such as lack of knowledge or not following hospital policy and procedures related to medication administration. System factors can be related to, for example, the environment where medications are prepared, ordering and dispensing systems and junior physicians prescribing medications. Other factors to be considered are large workloads and multiple distractions (Armitage and Knapman, 2003).

### Student medication administration in the laboratory and clinical setting

Giving medications is an important skill for nursing students that involves many aspects of knowledge application, critical thinking and decision making. For example, students need to know the pharmacology of medications, and the pertinent nursing interventions required. There are fundamental processes required by regulatory bodies such as the 8 'Rights'—right client, medication, dose, time, frequency, route, reason, and site (College of Nurses of Ontario, 2014). In Canadian hospitals, usually each nurse prepares the medications for her/his own patients. Beginning students

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College of Nurses of Ontario (2014)  
 "8 Rights" of Medication Administration  
 Right Client  
 Right Medication  
 Right Reason  
 Right Dose  
 Right Frequency  
 Right Route  
 Right Site  
 Right Time

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traditionally are taught to give medications in a laboratory setting prior to starting their clinical experiences. In this laboratory experience, students learn about the 'Rights', how to pour medications as well as give injections. High acuity (alert) medications such as insulin and anticoagulants usually are given special attention and extra time in the laboratory.

What is not addressed, necessarily, in the laboratory or clinical setting, are the system factors, or the context in which medications are administered. The laboratory setting may not reflect all aspects of the nurses' role in preparing and administering medications. For example, students need to have exposure to the whole process of understanding a medication record, including prescribing, transcribing, dispensing, administering and monitoring. Harding and Patrick (2008) conducted a retrospective review of 77 medication errors made and reported by nursing students in a baccalaureate program using incident reports over a three year period. The authors looked at both the kind of errors as well as contributing factors. Errors were labeled according to cause such as omission of a medication. For example, errors of omission accounted for 34% of the errors reported. In their study, 42% of these omission errors were related to inexperience in understanding the Medication Administration Record (MAR). Students also cited that busyness and being distracted during the process of administering medications accounted for 27% of these omission errors. Harding and Patrick (2008) concluded that content related to, for example, understanding the MAR needs to be addressed much more when teaching students to give medications.

Wolf et al. (2006) used a descriptive and retrospective study to identify characteristics of medication errors made by nursing students during the administration phase using the MEDMARX data base. During a 5 year period, 1305 student-made errors were reported into this data base. One-third involved omission of a medication or administration of the wrong dose. Errors related to wrong patient and route were higher for students than for nursing staff. The study found that the most common cause of errors (51%) was what they classified as 'performance deficit', meaning that the students had the knowledge and skills but failed to follow through successfully. The next highest causes of error were protocol not followed (32%), knowledge deficit (26.5%) and communication (17%). Inexperience and distraction were leading contributing factors. Environmental factors also were related to poor lighting, emergency situations, and increased workload. Wolf et al. (2006) recommended incorporating medication safety throughout the nursing courses in a curriculum. These studies highlight, for example, the need for students of understanding the MAR, being aware of the environmental influences when preparing and administering medications, recognizing the importance of protocols and having sound knowledge of medications.

### Recommendations for improvement

How students are exposed to the process of medication administration during their foundational education will influence how they see their role. Our recommendations focus on strategies

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