



The role of nursing education in preventing medication errors in Botswana



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ABSTRACT

Medication errors frequently feature in research world-wide. Although medication errors are also a concern in medicine and anesthesia, they have become a regular topic in nursing. In Botswana, a country challenged by shortage of both medications and professionals qualified to process and administer medications, as well as low levels of health literacy, the risk of medications errors should be even higher.

In Botswana nurses are deployed in both acute and primary care settings taking an active part in prescription, transcription, dispensing and administration of medications. Pre-service nursing education must therefore ensure that students are equipped with knowledge and skills on medication management and prevention of medication errors to prepare them for safe practice.

In this paper, the authors take stock of the extent to which nursing curricula address the prevention of medication errors, highlighting strengths and pinpointing weaknesses yet to be addressed. The exercise involved review of curricula at various levels of nursing education as well as nursing regulatory documents. Findings from the review were corroborated with published work on the subject. Recommendations for strengthening basic nursing curricula at both diploma and undergraduate levels' coverage of medications errors are proposed. Also recommended are measures to improve the system in the practice arena as well as research to establish the magnitude of medication errors and their related risk factors in Botswana. The exercise is envisaged to improve patients' safety and reduce the risk of litigation for nurses.

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1. Introduction

Medication errors are a serious scenario that is not only costly in financial terms but also that can cost a patient's life (Glavin, 2010). In a study done in the USA, it was reported that medication errors were responsible for 7000 deaths in a year (Phillips, Christenfeld, & Glynn, 1998). Although medication errors are prevalent in health care fields such as medicine and anaesthesia, they are more commonly reported in nursing (Aronson, 2009; Zakharov, Tomas, & Pelclova, 2012). The negative consequences of medication errors are not limited to the patient for whom the medication is intended; but may affect as well, the health professionals who are involved in committing such errors. Professionals may suffer psychological distress especially if the error is associated with high risk of harm. They may have to appear for disciplinary hearings, or may be charged with malpractice. For instance, a doctor was sentenced for manslaughter following an intra-spinal administration of a medication that must have been administered intravenously (Holbrook, 2003).

Because no empirical work on medication errors has been done in Botswana, the exact magnitude of the problem is unknown. However, in the work context that is challenged by shortage of professionals qualified to process and administer medications as is the situation in Botswana and in other developing countries, the risk of medication errors should be even higher. Although the Botswana Nurses Act assigns significant responsibility of medication management to nurses, the curriculum does not reflect sufficient breadth and depth of medication management to enable nurses' competency in managing medications. Faced with the obligation to provide quality and safe care within a resource constrained environment as well as the increasingly litigating society, nursing curricula in Botswana must therefore pay serious attention to equipping students with knowledge and skills on the prevention of medication errors. Although there have been no studies to establish the magnitude of medication errors in Botswana, the deficiencies noted in nursing curricula and constraints of practice environment such as shortage of staff pose a risk for medication errors. Given the significant role that nurses play in medication management and the isolated anecdotal reports of medication errors in the clinical environment, the authors of this paper found it imperative to critically interrogate literature on medication management and examine the country's basic nursing curricula at diploma and undergraduate levels for coverage of competencies necessary for the prevention and management of medication errors. For purposes of this paper, medication management emphasises the processes of prescribing, transcribing, dispensing and administering medications in which nurses in Botswana play an active part. The Drug and Related Substances Regulation of 1992, provides a guide to which medications nurses may prescribe and which ones can only be prescribed by doctors (Ministry of Health, 1992). The purpose of the paper is to examine the extent to which basic/pre-service and training programme for nurses in Botswana address prevention of medication errors.

2. Materials and methods

The exercise involved the authors' review of literature on medication errors and on nursing education and medication errors globally, regionally and locally. The specific question addressed was: What are the strengths and weaknesses of the basic nursing curricula in addressing medication errors when considered against what should prevail as revealed in the reviewed literature? The review was not limited to any time frame but priority was given to the most recent work between April and August of 2013. In addition to empirical work, local literature review also covered

basic nursing curricula and health care regulatory statutes in the country. It was hoped that the review would provide documentation on the risk of medication errors in practice settings. The resultant documentation will guide curriculum review and research.

3. Literature review

Definitions of medication errors are numerous with some restricted to a defined area while some have a much wider application. Variations of the definition of medication errors, together with variations in methodological approaches in researching the concept make it difficult to compare medication error rates across studies (Quality (US), 2008). It is therefore important that efforts to address medication errors should be accompanied by a clarification of what is referred to as medication error. Medication error has been defined as an act or omission involving medications with potential or actual negative consequences for a patient that, based on standard of care, is considered to be an incorrect course of action (Cheung, Bouvy, & De Smet, 2009). It was noted that a medication error may occur at any point of medication processing continuum; and that such points may be prescribing, dispensing, administering or recording (Miller, Clark, & Lehman, 2006). Elsewhere, a medication error is defined as 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 professional, patient, or consumer (United Kingdom National Coordinating Council, 2005). For purposes of this paper, medication errors are defined as any preventable and unintentional event occurring at any point in the chain of medication handling or decision making that has a potential to compromise the intended purpose of the medication or to cause harm to the person taking the medication. This definition does not include adverse reactions to appropriately administered medication or events of deliberate intention to cause harm or to cheat or exploit a person or the system.

Conditions that prevail at any given point of medication processing will determine the risk of error at that particular point in time. In USA, it has been noted that paediatric population may be at a greater risk for medication errors (Scott, Engum, & Breckler, 2008). In a study done in Canada, it has been shown that seemingly benign errors in calculation of stock solution volumes for children may have serious unanticipated consequences (Koren, 2002). Medication errors have also been found to be common in patients with limited cognitive abilities. A study examining medication errors in two academic paediatric hospitals in USA reported that the rate of potential adverse drug events was three times higher than previously reported in studies involving adults (Kaushal et al., 2001). The risk of medication errors is also high in intensive care units because of the high incidence of multi-system disorders requiring multi-drug therapy (Camire, Moyen, & Stelfox, 2009). In a study done in ICU in Ethiopia among nurses out of 1200 medication administration interventions, 621/51.8% had errors. Common errors were wrong timing, dose omission due to drug unavailability, missed doses and inaccurate dose calculations (Agalu, Ayele, Bedada, & Woldie, 2012).

Other conditions that have been found to present high risks of medication errors include (a) high workloads for health professionals, (b) lack of requisite training, (c) poor intra and inter-professional communication (d) patient's compromised ability to comprehend medication information, (e) loopholes in the marketing and distribution of pharmaceutical products, and (f) absence of an effective system for the prevention and management of medication errors (Dornan et al., 2009).

High workloads for those who handle medications or who make decisions on medications may lead to fatigue and burnout

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