The medication errors generated by nurses nursing essay

In many cases, medication errors cause adverse events, and sometimes, the consequences are fatal. Many of these mistakes are avoidable if policies of the hospital governing medication administrations are adhered to. In the U. S. today, most people use prescription medications, over the counter drugs, or dietary supplements. Errors when prescribing or taking these medications has been a problem for patients, insurance companies and the health care industry. The focus on medication errors has stimulated rapid adoption of medication administration technologies such as the bar-code medication administration (BCMA) system. Medication administration is an important nursing task. Work overload, combined with increased numbers of prescribed medications, puts nurses at risk of making serious errors. Medication errors are costly in terms of increased hospital stays, resources consumed, patients harmed and lives lost. Mistakes also have the potential for serious effects on the nurse involved, ranging from feelings of guilt and fear, to loss of clinical confidence, and disciplinary action as well as job loss. Medication errors happen in the hospital much more than are reported and their reasons are various including errors clinicians make in prescribing medications. A physician writes an order that sometimes contains instructions that if followed, will result in patients getting medications that are harmful to them. They may have had adverse reactions to such medications in the past or the drug may be contraindicated for the purpose for which they were ordered. This research paper will prove that the BCMA system is a reliable technology in reducing medication errors. On the other hand, critical steps omitted by health care providers and nurses often contribute to more than half of the medication errors generated when using the BCMA system. Thus, health care providers and nurses need to be educated on patient and medication safety

as well as the accurate use of the BCMA system. A clinical policy on the use of the BCMA system will also be developed.

For the purpose of research, the medication errors to be discussed will be restricted to the use of the BCMA system by nursing personnel. There are many regulatory guidelines for the administration of medications, but these policies are often ignored by nurses and other healthcare workers, and can result in errors. In the hospitals where we attend our clinical rotations, such as Kaiser and San Francisco General Hospital, medications such as chemotherapy, insulin, narcotics, heparin and magnesium sulfate have been identified as high risk medications. The nurse administering these drugs must have another licensed nurse cross check the order including the patient's name and identification number (ID), route, dosage and administration time for accuracy. The second nurse often appends his or her signature to the order without doing or completing the cross-check. Medication error is the inappropriate use of medication that can cause harm to patients. (See Appendix A)

Literature review

Research and Critique of literature

Franklin, O'Grady, Donyai, Jacklin & Barber (2007) are a group of pharmacists from the School of Pharmacy London and the Department of Pharmacy Surrey, UK, who conducted a before and after study of the BCMA system. They concluded that the closed-loop electronic and prescribing bar-code system reduced medication errors. Strengths of the study are that data were collected with a comprehensive framework and the identification of

prescribing error was noted using a validated method. One weakness is that the system was piloted on one ward. A mixed method study by Koppel, Wetterneck, Telles & Karsh (2008) from the Center for Clinical Epidemiology and Bio-statistics and the Department of medicine identified fifteen types of BCMA workarounds. Workarounds such as omission of process steps, steps performed out of sequence and unauthorized process steps. Some limitations in this study were that the nurses knew they were being watched using the BCMA and all possible workarounds were not included. However, the study suggests that the BCMA is beneficial in reducing medication error. Sakowski, Newman and Dozier (2008) found that medication errors identified by the BCMA system are benign and pose no harm to patients. A limitation of this study is that only errors detected by the BCMA were reviewed and errors did not contain the patient's diagnosis. Cina, Fanikos, Mitton, McCrea & Churchill (2006) are a group of pharmacists that include a medication safety officer and a director of pharmacy services at Brigham and Women's hospital (BWH) in Boston. The group studied errors generated in the medication repackaging center of BWH, in order to identify and implement improvements to reduce medication dispensing errors. Unfortunately, the study examined only one site and relied on human observers who may have failed to detect errors. See Appendix B

According to the book " To err is human: building a safer health system" medication errors frequently occur during the prescribing, dispensing and administration stages, and preventable adverse drug errors are a leading cause of death in the U. S (Kohn, Corrigan & Donaldson, 2000, p. 26). The American Hospital Association found that over 33. 6 million admissions in U.

S. hospitals in 1997 alone, at least 44, 000 to 98, 000 died of medical error and another 7, 000 deaths were due to medication errors (as cited in Kohn et al., 2000, p. 26). In addition, Philips et al. noted that a review of some U. S. death certificates, revealed about 7391 deaths caused by medication errors in 1993 (as cited in Kohn et al., 2000, p. 32). Researchers Kaushal, Bates, Franz, Soukup, and Rothschild (2007) conducted a statistical analysis and noted that about 49. 1% of medication errors were serious and 15% were life threatening. They also found that the cost of medication errors at the 735-bed Brigham and Women's Hospital is about $1. 5 million per year and $1. 48 million for a 20-bed tertiary care academy hospital (Kaushal et al., 2007). Fatal or serious medication errors result in additional lengths of stay in the hospital, thus adding to treatment costs. In order to reduce frequent errors, the BCMA was introduced to the health care system by the Agency for Healthcare Research and Quality and the Institute of Medicine (O'Malley, 2008).

Sakowski et al. (2008) have found that approximately 3. 1% of drug errors are made during hospital stays in the U. S. This finding is astonishing in the sense that the hospital is where people turn to for medical help and not medical injury that can result in death. However, the adoption of the BCMA by most hospitals today, has helped reduce medication errors before they reach patients (Cochran, Jones, Brockman, Skinner & Hicks, 2007). With the use of the BCMA, 37% of medication errors were detected by nurses during the dispensing phase and 27%, during the administration phase (Cochran et al., 2007). Furthermore, they noted that the " implementation of the BCMA in a 240-bed regional hospital study prevented 1, 300 medication errors for a

period of eight months" (Cochran et al., 2007). Some of these errors were interrupted by the BCMA when medications were going to be given prior to their specified time, or about to be given without a physician's order, or to be given to the wrong patient (Cochran et al., 2007). Due to heavy workloads, busy shifts, error warnings and the bulky nature of the BCMA, nurses find ways to bypass the BCMA system in order to get through busy schedules. These shortcuts often lead to errors in medication administration along with errors generated by the prescribing physician, as well as by the dispensing pharmacy. Medication administration is a complex system that requires coordination among physicians who order the medications, pharmacists who verify and dispense the drugs, and nurses who administer the medications to the patients.

Summary

Steps in medication administration are initiated when a drug is prescribed by a health care provider. The prescriber writes the patient's name, date, medication name, dosage, route (e. g. by mouth), number of tablets/capsules to be dispensed, the prescribers signature, his/her medical license number and Drug Enforcement Administration number (DEA) (numbers assigned to health care providers used for prescribing pain medications). Medication errors occur at this stage and include reasons such as a lack of attention to detail, lack of communication, duplicate medication with the same name but different doses or an illegible prescription order (Benjamin, 2003). Benjamin (2003) also noted that 71% of medication errors are due to poor communication, which can lead to prescribing contraindicated medication for a patient He goes on to give the example of

an 80-year old man who was given the pain medication Demerol despite a reported allergy to Demerol. After administration, the patient became unresponsive, had respiratory arrest and suffered hypoxic encephalopathy (lack of oxygen to the brain causing brain damage) (Benjamin, 2003). This incident goes further to show how important it is for physicians to communicate and listen to patients and nurses' concerns when prescribing medications. Below is a copy of a poorly written prescription by a healthcare provider. In this example there are 3 different types of medications prescribed for one patient. Although the handwriting is legible, ambiguous writing can lead to misinterpretation and further lead to medication error (Benjamin, 2003). See Appendix C.

Steps taken to ensure safety standards include affixing a computer generated bar code on medication containers. Pharmacists are supposed to be the first line of defense in reducing errors; however, pharmacies can contribute to medication errors as shown in the research by (Cina et al., 2006). The pharmacist or pharmacy technician prints and affixes bar codes on medications that are ready for administration. During this process, medication errors occur either due to the placement of wrong bar codes, medications missing bar codes, misspelled medications or medications with two different bar codes (Cina et al., 2006). Furthermore, 59. 7% of medication errors occur during the final stages of pharmacy repackaging system, a system of replacing commercial packaging for generic ones, due to incorrect lot numbers and NDCs (Cina et al., 2006). Another research by Cochran et al. 2007 found that medication errors " frequently entailed mislabeled medications, medications without bar codes and medications with

bar codes that would not scan." Therefore, pharmacists need to be more vigilant in checking for bar codes, lot numbers, correct NDCs, correct medication spellings and also verify illegible prescriptions in order to reduce chances of medication errors.

Despite the adoption of the BCMA as a medication safety technology, research has shown that nurses still contribute to a majority of medication errors. Koppel et al. (2008) have found that 32% to 60 % (adult & pediatric patients) of medication errors occur during the medication administration stage, most of which are caused by nurses because they failed to use the BCMA system. Because medication errors are so prevalent at the administration stage, nurses are mandated to use the BCMA system and are also required to abide by the medication administration guidelines step-by-step, through the final documentation stage. If a step of the medication administration process is missed, the likelihood for medication errors increases. A research by Franklin et al. (2007) confirmed that nurses fail to check patients' IDs 80% of the time before giving medications and 16% of medications were given before scanning the patents' ID band (Carayon et al., 2007). For example, wrong medications can be intercepted by a nurse if he/she compares the printed medication bar code to the information displayed on the BCMA system. In order to reinforce proper usage, monthly in-service (refresher course) may be required to educate nurses on medication administration as well as the importance of abiding by the hospital policy of medication administration.

The alarm sound on the BCMA system also allows nurses to detect medication errors before they get to the patient. But research has shown

that nurses often disable and ignore the alarm sound because they claim, " the sound is annoying and weird" (Carayon et al, 2007). Koppel et al. (2008) found that " nurses overrode BCMA alerts for 4. 2% of patients charted and for 10. 3% of medications charted." Errors were generated because the BCMA alarm was disabled and nurses did not follow administration steps, thus giving medications without confirmation by the BCMA system. The BCMA needs to be equipped with a mechanism that would restrict nurses from bypassing any administration step and this would help to reduce medication error. Also, the BCMA alarms should be configured such that the correct administration steps must be taken before advancing to the next step.

For the BCMA to work properly, it's advised that it should be charged or plugged in when not in use since it is a mobile machine that is in constant use. Often times, nurses fail to charge the BCMA as advised and when the BCMA loses charge, it shuts down without warning which can lead to data loss (Parker & Baldwin, 2008). Data loss causes frustration for nurses; so they decide to skip the BCMA system during drug administration (Parker et al, 2008). " When batteries fail, nurses had no immediate means to replace them with charged battery. Use of the BCMA was suspended until the units were recharged" (Parker et al., 2008). Since the BCMA system is used constantly for multiple patients, battery life can be preserved by getting a BCMA that uses removable batteries. A removable battery can last for twenty-four hours as well as making sure that there are extra replacement batteries for the BCMA.

The BCMA system requires lots of confirmatory steps and a personal log-in process by nurses before a medication is confirmed accurate for administration. Parker et al. (2008) found that nurses were dissatisfied with the log-in process because it requires much time to complete a single log-in. " A single log-in process could take up to 2 minutes, consuming up to 48 minutes of nursing time waiting for computer access"(Parker et al., 2008). Therefore, nurses cut corners in using the BCMA; they decide to give the medication without using the BCMA and document the action at a later time. This can cause a nurse to administer the wrong medication and to the wrong patient. The BCMA process requires that nurses scan both, the medication and patient's ID band in the patient's room before administration. In many clinical facilities, the policy is for nurses to dispense the medications, one patient at a time. In fact, the rule is that the nurse, check the medication record of a patient against the patient's profile in the pyxis (medication storage). If they match, the nurse will then pull out the medications for the particular patient and walk directly to the patient's room with the medications and the BCMA system. In the patient's room, the nurse scans and checks the medication and name against the patients' ID band; if they match, the medication is then administered and documented after administration. Nurses however, do not follow this simple rule in medication administration. The result of circumventing the rule is that nurses walk into a wrong patient's room and administer the wrong medication. According to a research by Carayon et al. (2007), the correct sequence for medication administration is as follows: See Appendix D. These steps are critical in verifying that the right medication is given to the right patient. However, they found that nurses often do not follow the steps. For example, nurses

were documenting medications before it was actually given to the patient. They check and obtain medication before scanning patients ID band (Carayon et al., 2007). To reduce the problem of workarounds, nurses who are caught with multiple medications and wristbands, need to be disciplined. And bar codes can be printed in bold so nurses can acknowledge them.

The use of the BCMA requires complete attention in order to avoid mistakes. Patterson, Cook, and Render (2002) have found that nurses are often interrupted for one problem or another during medication administration. Below is a flow chart that shows the various instances when nurses are interrupted during medication administration process. See Appendix C. Medication administration is very critical and to reduce frequent interruptions, the nurse manager should make sure that a charge nurse (a nurse who supervises other nurses without having a patient) is assigned during every shift to help nurses with minor needs such as moving or walking a patient. Nurses should be given more training opportunity to better understand the use of the BCMA as well as its functions.

Conclusion

The BCMA is still a challenge to health care workers; on the other hand, it has helped to reduce medication errors since its adoption. Health care providers need to help reduce medication errors by putting patient's safety first. Nursing staff need to be more cooperative and strictly follow the prescribed guidelines when using the BCMA system during medication administration.