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Exploring the Relationship between Reporting Medication Errors and Nurse Fear of Retribution

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Retribution

by

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Abstract

Studies have shown that medication administration errors are a critical issue in healthcare

and more importantly preventing this type of error depends on precise reporting. Analysis

of medication errors can lead to healthcare system improvement and reduced risk if the

errors are detected, reported, and used to formulate improved patient care practices and

systems. Nurses are the front line of defense to intercept and report errors. Through a

review of the literature, it has been determined that nurses possibly fear blame and

punishment when a Medication Administration Error (MAE) occurs; therefore, the

purpose of this Master of Science in Nursing (MSN) Thesis was to examine whether

nurses avoid reporting MAEs due to perceived fears of retribution. A quantitative cross-

section correlative design was used to implement the study. The Medication

Administration Error (MAE) Reporting Survey was utilized as the survey instrument. The

study sample was comprised of registered nurses working on various inpatient units. The

subjects were recruited through convenience sampling, with 48 participants being used

for the study. The data was analyzed by calculating means and standard deviations for

individual items and for subscales, and correlational analyses were conducted to

determine if an association exists between perceived reporting barriers and perceived

frequency of reporting. The study identified that the primary perceived barriers to

reporting MAEs were fear related. Nurses indicated that additional barriers to reporting

are due to not receiving positive feedback for passing medications correctly and that

nurses may not think that the error is important enough to be reported. Also identified in

this study, is the fact that nurses perceive that medication errors are underreported;

although no correlation was found to exist between perceived reporting barriers and nurses' perceptions of the frequency of medication error reporting.

*Keywords***:** medication errors, reporting, error reporting barriers

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all tremendously.

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CHAPTER I

Introduction

Problem Statement

In 1999, the Institute of Medicine (IOM) issued a report, *To Err is Human: Building a Safer Health System*. The report estimated medication errors to account for more than 7,000 deaths annually. Medication errors negatively affect patients, nurses and organizations, and reduce healthcare efficiency. According to IOM, medication errors injure at least 1.5 million people and the medical costs of treating medication errors related injuries occurring in hospitals alone are approximately 3.5 billion dollars per year (IOM, 2006). The IOM (1999) report offered a four-tier strategy for a safer healthcare system; one of the tiers recommendations was to identify and learn from errors by developing a nationwide public mandatory reporting system and by encouraging health care organizations and practitioners to develop and participate in voluntary reporting systems (IOM, 1999). Reporting of Medication Administration Errors (MAEs) is essential to developing strategies to prevent and reduce medication errors because the healthcare community can learn from mistakes. Data obtained from the MAE reporting system provides useful information on the causes of medication errors and important mechanisms can be modified (Kim, Kwon, Kim, & Cho, 2011). Nurses are the front line of defense to intercept and report medication errors. However, the reporting of medication errors lacks an evidence base, taking little account of nurses' professional needs, readily obtainable analysis, or individual learning. Through the review of literature regarding medication errors, several areas of particular concern emerged including: the nurses' confusion regarding the definition of drug errors and the appropriate actions to

take when they occurred, their fear of disciplinary action, their loss of clinical confidence, and the variation in managerial response (Gladstone, 1995). Nurses' underreporting of MAEs is possibly affected by individual factors, such as fear of retribution and negative attitudes toward MAEs from nurses' supervisors and colleagues.

Justification of the Research

An error can be defined as "the failure of a planned action to be completed as intended (error of execution) or the use of a wrong plan to achieve an aim (error of planning)" (Unver, Tastan, & Akbayrak, 2012, p. 317). The National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) (2014) defines a medication error 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" (para. 1). Studies have shown that medication administration errors are a critical issue in healthcare and more importantly, preventing this type of error depends on precise reporting (Mayo & Duncan, 2004). Additional studies have noted that inhibiting factors for nurses reporting medication errors to be a fear of reaction by supervisor or colleagues, being criticized or stigmatized as unqualified, causing negative impressions on patients, and being subject to lawsuits (Mayo & Duncan, 2004; Osborne, Blais, & Hayes, 1999; Wakefield, Wakefield, Uden-Holman, & Blegen, 1996). The aim of this researcher's study was to determine whether fear of retribution continues to be an inhibiting factor in nurses reporting medication administration errors.

Purpose

Analysis of medication errors can lead to healthcare system improvement and reduced risk only if the errors are detected, reported, and used to formulate improved patient care practices and systems. Although several approaches exist to identify the occurrence of MAEs, medication errors are primarily identified through voluntary reporting systems (Wakefield, Uden-Holman, & Wakefield, 2005). The voluntary reporting process involves four basic steps: (1) error recognition, (2) assessment of the need to report the error, (3) incident report preparation, and (4) follow-up response by the party receiving the report (Wakefield et al., 2005). While this four-step process may seem straight-forward, there are a number of factors that may prevent reporting. Through a review of the literature, it has been determined that nurses possibly fear blame and punishment when a MAE occurs; therefore, the purpose of this Master of Science in Nursing (MSN) Thesis was to examine if nurses avoid reporting MAEs due to perceived fears of retribution. Through the identification of nurses' reporting barriers, an understanding of MAE reporting will be enhanced, thereby providing an opportunity for the reduction of inhibiting factors for reporting. These perceived barriers can be reduced by promoting an organizational culture free of blame and punishment and by enhancing nurses' willingness to report errors. By increasing nurses' reporting of medication errors, organizations are provided with the information necessary to learn from these mistakes and reduce the likelihood of future error occurrence, which in turn improves the overall safety and positive outcomes of patients.

Theoretical Framework

In this study, the researcher utilized a nurse-borrowed theory from the behavioral sciences—the Theory of Planned Behavior (TPB) (Ajzen, 1988). The TPB is a modification of the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975). The TPB has been widely used to understand various behaviors in the field of healthcare (Armitage & Conner, 2001) Furthermore, a systemic review shows that the TPB is very useful to explain healthcare professionals' behaviors and intentions (Godin, Belanger-Gravel, Eccles, & Grimshaw, 2008). The TRA explains the relationship among belief, attitudes, intentions, and behavior. The TRA is based on the assumption that people are rational and make decisions based on the information available to them. According to TPB, a person's behavior is determined by his/her intention to perform the behavior and that this intention is, in turn, a function of his/her attitude toward the behavior and his/her subjective norm. The TPB infers that the best predictor of behavior is intention. Intention is the cognitive representation of a person's readiness to perform a given behavior and it is considered to be the immediate antecedent of behavior. This intention is determined by three things: their attitude toward the specific behavior, their subjective norms, and their perceived behavioral control. The TPB holds that only specific attitudes toward the behavior in question can be expected to predict that behavior. In addition to measuring attitudes toward the behavior, the TPB explains that it is also important to measure people's subjective norms. Subjective norm is determined by perceived pressure from specified significant others to carry out the behavior and motivation to comply with the wishes of significant others. To predict someone's intentions, knowing these beliefs can be as important as knowing the person's attitudes. Finally, perceived behavioral control

influences intentions. Perceived behavioral control refers to people's perceptions of their ability to perform a given behavior. These stated predictors of beliefs lead to the attitude toward a behavior, subjective norm, and perceived behavioral control, which in turn leads to intention. As a general rule, the more favorable the attitude and the subjective norm and the greater the perceived control, the more likely the person's intention to perform the behavior in question. Figure 1 depicts the components of Theory of Planned Behavior.

Note: Upper blue section shows the Theory of Reasoned Action; the entire figure shows the Theory of Planned Behavior.
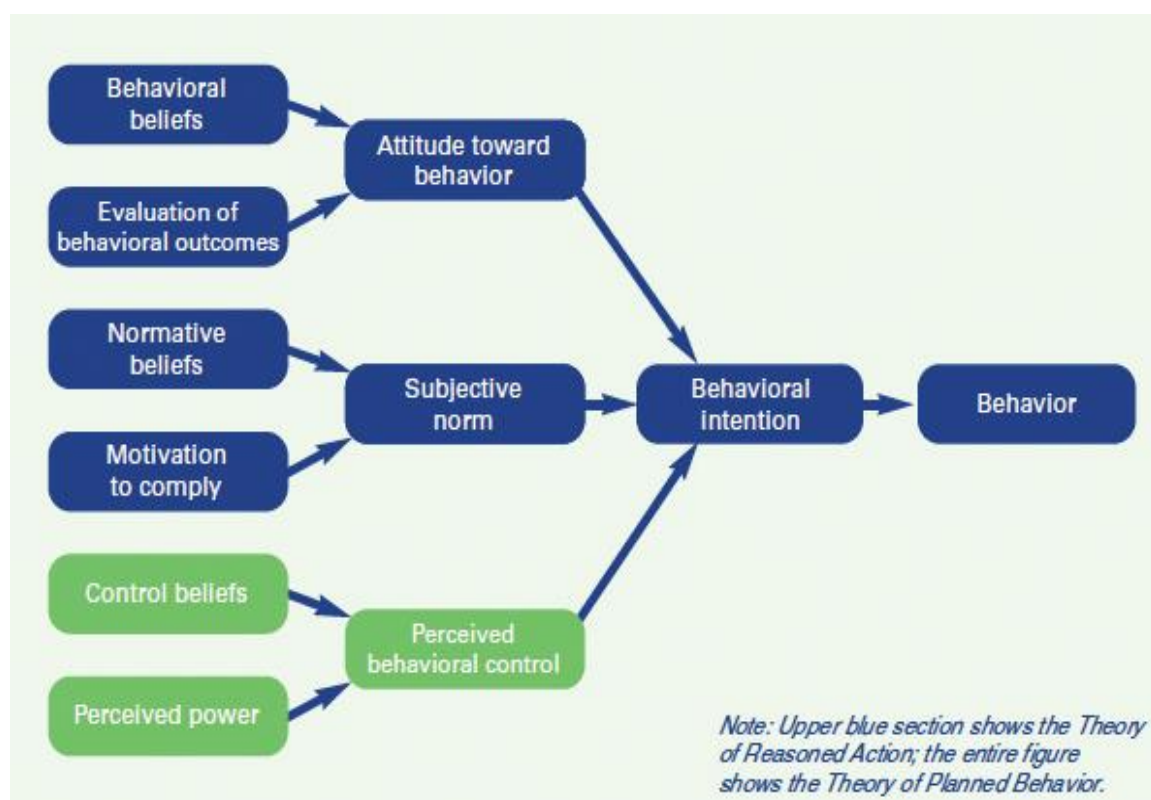
Theory of Reasoned Action and Theory of Planned Behavior, Ajzen & Fishbein (1980).

Figure 1: Theory of Planned Behavior

Thesis Question

What is the nurse's perception of why medication administration errors are not reported on his/her unit?

Definition of Terms

In the survey instrument, some use of verbiage is somewhat outdated, for example: "Kardex" refers to "MAR" or an "eMAR" and "ward" is now commonly referred to as "unit". In addition, for the purpose of performing the survey, the author of the instrument has defined MAEs as errors related to the actual ingestion, injection, or application of individual medication doses (e.g., wrong method of administration, wrong patient, wrong additive) (Wakefield et al., 2005).

Summary

Medication errors negatively affect patients, nurses, and organizations, and reduce healthcare efficiency. Reporting of Medication Administration Errors (MAEs) is essential to developing strategies to prevent and reduce medication errors because the healthcare community can learn from mistakes. Nurses are the front line of defense to intercept and report medication errors. Nurses' underreporting of MAEs is possibly affected by individual factors, such as fear of retribution and negative attitudes toward MAEs from nurses' supervisors and colleagues. Analysis of medication errors can lead to healthcare system improvement and reduced risk only if the errors are detected, reported, and used to formulate improved patient care practices and systems. The purpose of this MSN thesis was to examine whether nurses avoid reporting MAEs due to perceived fears of retribution. Nurses' behavioral actions of whether or not to report medication errors and their perceived reporting barriers are explained through the use of the theoretical

framework of the Theory of Planned Behavior (TPB). According to the TPB, a person's behavior is determined by his/her intention to perform the behavior and that this intention is, in turn, a function of his/her attitude toward the behavior and his/her subjective norm. Through the identification of nurses' perceived reporting barriers, an understanding of MAE reporting will be enhanced, thereby providing an opportunity for a reduction of perceived inhibiting factors and overall occurrence of errors.

CHAPTER II

Research Based Evidence

Medication errors negatively affect patients, nurses, and organizations, and reduce healthcare efficiency. Reporting of Medication Administration Errors (MAEs) is essential to developing strategies to prevent and reduce medication errors because the healthcare community can learn from mistakes. Nurses are the front line of defense to intercept and report medication errors. However, the reporting of medication errors lacks an evidence base, taking little account of nurses' professional needs, readily obtainable analysis, or individual learning. The purpose of this MSN thesis study was to examine whether nurses avoid reporting MAEs due to perceived fears of retribution. Through the identification of nurses' perceived reporting barriers, an understanding of MAE reporting will be enhanced, thereby providing an opportunity for a reduction of perceived inhibiting factors and overall occurrence of errors.

A review of the literature was conducted using the Cumulative Index for Nursing and Allied Health Literature (CINAHL). The keywords explored were: medication errors, error reporting, nurse perceptions, and theory of planned behavior.

Literature Related to Statement of Purpose

To err is human. In 1999, the United States' Institute of Medicine (IOM) issued a report, *To Err is Human: Building a Safer Health System*. The report estimated medication errors to account for more than 7,000 deaths annually. One of the report's main conclusions was that the majority of medication errors do not result from individual recklessness or the actions of a particular group; more commonly, errors are caused by faulty systems, processes, and conditions that lead people to make mistakes or fail to

prevent them. Failure to communicate a medication error once it occurred was identified as one of the issues involved in preventing future errors. IOM's report offered a four-tier strategy for a safer healthcare system; one of the tiers' recommendations was to identify and learn from errors by developing a nationwide public mandatory reporting system and by encouraging health care organizations and practitioners to develop and participate in voluntary reporting systems (IOM, 1999). Mistakes can best be prevented by designing the health system at levels to make it safer—to decrease the likelihood for people to make an error and make it easier for people to report an error should it occur. When an error occurs, blaming an individual does little to make the system safer and prevent someone else from committing the same error (IOM, 1999).

Since the publication of the IOM (1999) report, a tremendous amount of research has been devoted to identifying factors that promote safely administered medications in healthcare organizations. Nonetheless, further study reports, Aspden, Wolcott, Bootman, & Cronewett (2007) and another report The Robert Wood Johnson Committee (2011), concluded that healthcare has not necessarily grown safer, implying that the past several years might represent a "lost decade" in patient safety (Wynia & Classen, 2011).

Implementing a culture of safety. Patient safety has become a core value within the contemporary workplace and is based on validated data demonstrating improved patient outcomes (Matthews & Pronovost, 2012). An organizational culture of safety is closely linked to error making by healthcare workers and can be identified as the workers' understanding of the hazards in their workplace, and the norms and roles governing safe working. The key to developing a culture of safety is at every level within the organization. There is dire importance for management to receive information on

errors made and defines this "reporting culture" as an early intervention in creating a culture of safety. The reporting culture will affect the ability of the organization's leadership to gather information and compile knowledge about the environmental, organizational, personal, and other factors determining the safety of the system as a whole.

The purpose of the study by Kagan and Barnoy (2013) was to investigate the association between patient safety culture (PSC) and the incidence and reporting rate of medical errors by Israeli nurses. The study utilized a convenience sampling of 247 registered nurses enrolled in training programs at Tel Aviv University. The self-administered questionnaires examined the incidence of medication mistakes in clinical practice, the reporting rates for these errors, and participants' views and perceptions of the safety culture in their workplace. Data were analyzed using Pearson correlation coefficients, t tests, and multiple regression analysis. The study findings indicated that most nurses encountered medical errors from a daily to a weekly basis. Six percent of the sample never reported their own errors, while half reported their own errors "rarely or sometimes". The level of PSC was positively and significantly correlated with the error reporting rate. PSC, place of birth, error of incidence, and not having an academic nursing degree were significant predictors of error reporting, together explaining 28 % of variance. The study concluded the influence of an organizational safety climate on readiness to report errors. In addition, healthcare leaders need to develop a vision and strategy, communicate them to employees, and find ways to motivate employees to implement improvement programs (Kagan & Barnoy, 2013).

The contributory factors to medication errors. Errors cause distrust and dissatisfaction of patients with health care systems (IOM, 1999) and can also lead to stress and moral issues among nursing staff (Osborne et al., 1999). Medication errors negatively affect patients, nurses, and organizations and reduce healthcare efficiency (Joolaee, Hajibabaee, Peyrovi, Haghani, & Bahrani, 2011). Therefore, finding the causes and solutions to this problem should be a top priority for any health care system. Medication errors can have many causes. The errors can be the result of systematic factors (heavy workload and insufficient training), patient factors (complicated conditions), doctor factors (complex orders and poor hand writing), and nurse factors (personal neglect, new staff, unfamiliarity with the medication, and unfamiliarity with patient) (Tang, Sheu, Yu, Wei, & Chen, 2007; Mrayyan, Shishani, & Al-Faouri, 2007). Studies have demonstrated that most errors occur when prescribing and administering drugs. Errors related to prescribing are usually attributed to doctors' malpractice, while nursing staff usually are responsible for errors during drug administration (Lassetter & Warnick, 2003).

It is presumed that the lack of a general concept of medication errors is a result of inefficient documentation and error-reporting systems and insufficient research in the area. The aim of the 2008 to 2009 study by Joolaee et al. (2011) was to determine the frequency of medication errors and their reporting by nursing staff employed at Iran University of Medical Sciences in Tehran, Iran. The sample size of the study consisted of 300 nurses, approximately 100 from each shift. The sample was selected using a stratified multistage sampling method randomly based on the number of nurses employed at one non-educational and one educational hospital. The study design used a cross-sectional,

descriptive-analytical study in which the relationship between the incidence and reporting

of medication errors by nurses and work conditions from the participants' point of view

was studied. The study conducted was a three-part questionnaire which included a

demographic section as the first part. The second part of the survey consisted of 19

statements of medication errors and relative reports by nurses within the preceding three

months. In the third part of the questionnaire nurses were asked yes/no questions

concerning the nurses' work environment (work conditions) and included issues regarded

by nurses to be present in their work environment. The results were analyzed using

descriptive statistics, one-way analysis of variance and Kruskal-Wallis tests for response

to the study aim. Data were entered into the Statistical Package for the Social Sciences,

version 16 for windows (SPSS Inc., Chicago, IL, USA). The findings revealed the mean

of medication errors that nurses recalled was 19.5, and the mean of error reporting was

1.3 cases during the previous three months. The relationship between error incidence and

work conditions as perceived by nurses was statistically significant (df = 3, $P \leq 0.0001$);

however, there was no significant relationship between reporting the occurred error and

nurses' perceived work conditions (df = 3, $P \leq 0.255$). Joolaee et al. (2011) concluded

that the establishment of an efficient reporting system, documentation of errors, and

removal of obstacles to reporting may result in reduced frequency of errors. Furthermore,

considering the relationship between medication error incidence and working conditions,

it seems that creating a work condition in which nurses feel more comfortable and

decreasing work tensions may pave the way to preventing nursing errors.

Another study was performed in 2009 by Unver et al. (2012) with the aim to

investigate newly graduated and experienced nurses' perspectives concerning medication

errors. The study was performed in a military education and research hospital in Turkey.

The study was comprised of 82 experienced nurses and 87 newly graduated nurses in the

military hospital. Stratified sampling was used for sample selection. The data collection

form consisted of two parts and was designed to report the perspectives. The first part

consisted of seven questions regarding the participants' ages, departments, educational

levels, work positions, work intervals. Average hours worked per month and shifts. The

second part consisted of a questionnaire prepared by Gladstone (1995) regarding the

perspectives of nurses on medication errors. The results were evaluated using SPSS

version 15.0 and descriptive statistics were performed. The results indicated that the

newly graduated nurses stated that 45.35 % of medication errors were reported, and

experienced nurses stated that only 37.63 % of medication errors were reported. The two

most common perceived causes of medication errors that occur were found to be when

nurses were distracted by other patients, co-workers, or events on the unit; and drug

errors that occurred when the nurse failed to check the patient's name band with the

Medication Administration Record (MAR). In both groups, it was found that the fewest

'yes' responses were given for the item 'you don't report medication errors because you

are afraid of getting disciplinary punishment or losing your job' (Unver et al., 2012).

Although another result from the 2009 Unver et al. (2012) study was that more than half

of the nurses did not report some medication errors because they were afraid of their

colleagues' reactions. In this study, nurses selected 'Drug errors occur when nurses are

tired and exhausted' as the main cause for error occurrence (Unver et al., 2012). This

finding supports previous studies which indicated that increased working hours raise the

risk for medication errors (Wilkins & Shields, 2008); and night shifts and long working

hours cause failures in the cognitive functions of workers (Muecke, 2005). The study concludes that nurses do not report medication errors for the fear of possible negative comments from their colleagues. Unver et al. (2012) suggests that it is important to nurture a culture that is less focused on laying blame to encourage communication and errors reporting. In addition, establishing a fair and effective reporting system for medication errors is an indicator of quality of outcomes.

       Nurses' perceptions of medication error occurrence. According to Hajibabaee et al. (2014) medication errors are among the most prominent clinical errors and preventing them will play a key role in promoting patient safety and improving patient outcomes. Furthermore, medication errors present a global problem and lead to serious consequences such as increased mortality, longer hospital stays, and greater costs to the health care system and the consumer. It has been argued that health care providers' concerns about medication errors include fear for patients' safety, fear of license revocation, being judged as incompetent by co-workers, fear of rejection, and fear of being disciplined. The aim of the study performed by Hajibabaee et al. (2014) was to evaluate error reporting by the nursing staff and the relationship between some individual and organization characteristics such as the type of ward, type of shift, type of employment, and formal training in drug administration. Using a stratified multistage sample, 300 nurses were surveyed who worked in adult inpatient units in teaching and non-teaching hospitals in Iran. The study was conducted between November 2008 and May 2009. The method of the study performed was a cross-sectional, descriptive-analytical, self-report questionnaire survey developed by the researchers. Data were described and explored using Kruskal-Wallis, one-way analysis of variance and Mann-

Whitney's test. The results of the study indicated that none of the organizational

characteristics reported were significantly related to reporting of medication errors.

Failure to record vital signs (e.g. pulse, blood pressure, etc.) before and after

administering certain medicines was the most frequently reported medication error. In

conclusion, nurses revealed that fewer medication errors occurred than were reported. An

open policy for the reporting of medication errors enables organizations to gather vital

information about the factors that contribute to the medication errors. Furthermore, the

study concludes that establishing a comprehensive reporting system free of fear and

punishment can make a significant difference in encouraging nurses to report the

potential errors and help the health care system learn from those errors (Hajibabaee et al.,

2014).

Knowing nurses' perceptions of medication errors is important in developing

prevention strategies for medications. From December 2009 to January 2011 another

study was performed in South Korea by Kim et al. (2011) to identify Korean nurses'

perceptions of medication errors. Kim et al. (2011) used a convenient snow-balled sample

of 220 nurses from seven hospitals. Participants were asked to identify contributing

factors of medication errors, reporting, and strategies to prevent medication errors. A

cross-sectional descriptive survey was developed by the researcher through

comprehensive literature review and analysis of the existing data. Participants were asked

to recall medication errors in which they were involved in the past month. The data was

analyzed using SPSS version 17. Contributing factors, reasons of failure to report, and

prevention strategies for medication errors were ranked in descending order; thus they

were considered to be ordinal variables. Approximately two-thirds of participants

reported that they had been involved in medication errors in the last month. Medication errors occurred mostly during intravenous administration with 43.3 % occurring during the day shift. The four types of medication errors most often recalled were wrong dosages, wrong prescription, wrong drug, and wrong time. As a result of multiple responses to questions on factors contributing to medication errors, about half of the participants answered 'unfamiliarity with the drug'. Participants ranked 'advances drug preparation and administration without rechecking', 'heavy workload', 'miscommunication while conveying verbal orders', 'miscommunication among clinicians', and 'failure to be alert while checking prescription', respectively, as contributing factors for medication errors (Kim et al., 2011). Among participants who experienced medication errors, 47.8 % did not disclose the errors to patients or their families while 38.7 % occasionally informed and only 13.5 % always informed; 30.7 % of the participants stated they reported the medication errors to the attending physician and supervisor informally; 22 % reported only to the attending physician but not the supervisor, and 19 % did not report to anyone. The most frequent reasons for failure to report medication errors were fear of being a trouble maker (46.7 %), lack of awareness of the importance of reporting even minor errors (25 %), and to cover up for the colleague involved (10.9 %). The results of the study demonstrated that many cases of medication errors have not been reported to either supervisors or patients. The main reason of failure to report was fear of punishment. Making the hospital atmosphere less punitive may create more constructive and positive attitudes towards reporting medication errors and fulfilling professional obligations to disclose medication errors to patients and/or families. The nurses from the study suggested that continuous monitoring

and replenishing nursing staff are the most effective strategies to prevent medication errors. Additional suggestions included keeping up with medication training, preparing and administrating the medication without distraction, and improving communication among healthcare workers.

Medication error reporting. Medication errors continue to be a persistent problem in healthcare. Reporting of medication errors has become the cornerstone of learning from errors; however, it is not without imperfections. The reporting of drug errors lacks an evidence base; taking little account of reporters' needs readily obtainable analysis or individual learning (Armitage, Newell, & Wright, 2010, p. 1189). The aim of the 2010 study by Armitage et al. (2010) was to improve reporting and learning from drug errors through an investigation of the contributory factors in drug errors and quality of reporting in an acute hospital. The researchers used a retrospective, random sample of 991 drug error reports from a large teaching hospital in Northern England between the years of 1999 to 2003. This sample was subjected to quantitative and qualitative analysis. This was followed by 40 qualitative interviews with multi-disciplinary health professional volunteers. This combined analysis was used to develop a knowledge base for improved drug error reporting. The quantitative data were analyzed using descriptive statistics and was co-rated using Cohen's weighted Kappa. The interview data were analyzed using a qualitative process modified from earlier work by Spencer, Ritchie and O'Conner (2003). The study results indicated that the quality of reports varied considerably and 27 % of reports lacked any contributory factors. Data analysis revealed a focus on individuals, sometimes culminating in blame without obvious justification. In addition, interviewees viewed causation as multifactorial, including cognitive and

psychological factors. Organizational orientation to error was predominantly perceived by interviewees as individual rather than system based. Staff felt obligated to report but rarely received feedback. A blame culture was seen to persist, especially among nurses. The proposition that nurses might, through an ongoing individual rather than system focus, find themselves perpetuating blame (Hand & Barber, 2000), warrants further study; especially when the current study suggests individual reprimands were more likely when the evidence of causation was at its weakest. Armitage et al. (2010) concludes that reporters should be given more opportunity to play an active but feasible part in identifying causation. However, they do require structured guidance informed by error theory, replacing inappropriate blame with learning.

Impact of electronic reporting. Underreporting of errors in hospitals persists despite the claims of technology companies that electronic systems will facilitate reporting. The study conducted by Lederman, Dreyfus, Matchan, Knott, and Milton (2013) builds on previous analyses to examine error reporting by nurses in hospitals using electronic media. The study raised the question: Does the technology create barriers that lead staff to refrain from reporting? A mixed-method case study of nurses' use of an error reporting system, RiskMan, in two hospitals in Australia was utilized. In the first part of the study the researchers performed 18 in-depth interviews with nurses, eight of whom employed at a private hospital and ten were employed at a public hospital. The research team also interviewed one occupational health and safety officer and two physicians. The survey questions focused on evaluating the nurses' comfort level with using electronic reporting for medication errors. All interviews were recorded and transcribed. The principles of Klein and Myers (1999) were used in the coding. For

example, an examination of the transcripts involved multiple iterations of the data

(principle of hermeneutic circle), in seeking to understand statements made by

interviewees from different perspectives (principle of multiple interpretations). The

second method utilized was a paper and pencil self-administered survey distributed to

nurses working on the floor. The survey asked the 30 participants whether they agreed,

disagreed, or were unsure about a list of reasons for not reporting in RiskMan. The data

of the self-administered questionnaires were analyzed using descriptive statistics. The

results indicated that top barriers to reporting medication errors using the electronic

reporting system in descending order were: (a) lack of training using RiskMan, (b) too

busy to enter errors, (c) lack of access to a computer, (d) fear of being "tracked down",

(e) never getting any feedback on what actions were taken as a result of the report being

made, and (f) the report requiring too much detail (Lederman et al., 2013). The study

concludes that information technology—based error reporting systems have unique

access problems and time demands and can encourage nurses to develop alternative

reporting mechanisms.

Attitudes to reporting medication error among differing healthcare

professionals. Medication error reporting is an important measure to prevent medication

error incidents in a healthcare system and can serve as an important tool in patient safety

(Sarvadikar, Prescott, & Williams, 2010). The study performed by Sarvadikar et al.

(2010) evaluated the attitudes of healthcare professionals (doctors, nurses, and

pharmacists) in reporting medication errors. The study took place in a tertiary referral

hospital in Scotland with a sample size of 57 participants. A questionnaire using two

different clinical scenarios (involving oral and intravenous administration of a drug) and

four questions with an ascending order of worsening of patient outcome was used. A Likert scale ranging from 1 (unlikely) to 5 (likely) was used to describe the likelihood of reporting a medication error. The data were analyzed using SPSS software version 14.0.2. The distributions of responses in the three groups were compared using Kruskal-Wallis tests. The study results showed that doctors were unlikely to report less-serious medication errors. Nurses and pharmacists were likely to report less-serious as well as serious medication errors despite their fears of receiving disciplinary action. All healthcare professionals were more likely to report an error as the clinical scenarios had a progressively worsening outcome for the patient. In addition, the study demonstrated that nurses and pharmacists have a higher expectation of being blamed and criticized than do doctors. All healthcare professionals expressed an increased fear of disciplinary action with an increase in the severity of patient outcome. Out of the healthcare professionals surveyed, nurses were the most concerned about disciplinary action in most scenarios. This finding supported a previous study by Wolf, Serembus, Smetzer, Cohen, and Cohen (2000) that suggested nurses have greater fear of disciplinary action because of a greater feeling of responsibility for an error, fear about the consequences for the patient, and attitudes of senior staff to errors. The current study by Sarvadikar et al. (2010) discovered that despite nurses and pharmacists being more likely to think they would receive disciplinary action than doctors were, they were still more likely to say they would report an error. Whereas most healthcare professionals thought being discharged from employment was an unlikely outcome of the medication errors, nurses expressed a greater expectation of being discharged for a medication error that resulted in severe patient harm. The study infers that this may suggest a perception of an unsupportive

working culture for reporting medication errors among nursing staff. Based on the results of their study, the researchers suggested that hospitals should review their policies on error reporting to ensure they actively encourage staff of all healthcare professions to report medication errors and to support a blame-free culture in the organization (Sarvadikar et al., 2010).

Barriers to nurses' reporting medication administration errors. Nurses are the front line of defense to intercept and report medication errors. Therefore, learning from errors by depending on voluntary error reporting is the strategy in use to improve medication safety and to modify system vulnerabilities (Kohn, Corrigan, & Donaldson, 2000). However, nurses' underreporting of medication administration errors (MAEs) is possibly affected by individual and organizational factors such as fear of reprisal, negative attitudes towards MAEs, and complexity of reporting systems (Uribe, Schweikhart, Pathak, Dow, & Marsh, 2002). These factors are considered to be barriers that hinder nurses' willingness to report MAEs. Understanding nurses' perceived barriers to MAE reporting is a primary step to strengthen medication safety.

Chiang and Pepper (2006) performed a study to describe nurses' perceptions of reporting barriers to reporting MAEs and to examine the relationship between the barriers to MAE reporting and cultural factors and nursing work environment in Taiwan. The study consisted of a cross-sectional, descriptive correlational design study with self-administered questionnaires conducted in one large medical center hospital in southern Taiwan. The study sample included 597 registered nurses who were in a non-managerial role and who had worked as a nurse greater than three months. Nurses' perceptions of barriers to MAE reporting were measured by the Reason Why MAEs Are Not Reported

survey instrument developed by Wakefield et al. (2005). The construct validity was supported by factor analysis yielding the three subscales of fear (six items), reporting process (six items), and administrative barriers (four items). The reliability of the questionnaire was acceptable with Cronbach's alpha .86. The findings of the study concerning the barriers to MAE reporting were the group means of 55.50 (SD = 11.07) on the total score and the standardized means ranged from 3.92 to 2.99, indicating that the barriers to MAE reporting were located between slight disagreement to slight agreement. Compared to the standardized mean of each subscale, fear (standardized mean= 3.92) was considered as a major barrier. Items of the fear subscale with item means greater than 4.0 were items 11(i.e., adverse consequences from reporting), and 8 (i.e., being blamed for MAE results). The other minor fear items were patients' negative attitudes (Item 10), physicians' reprimand (Item 3), not recognizing MAEs (Item 1), and being recognized as incompetent (Item 7), with item means ranging from 3.63 to 3.91. The next strongest perceived barriers were administrative barriers (standardized mean=3.50). These barriers indicated administrators' management and attitudes toward MAEs. The primary administrative barrier was no positive feedback for giving medication correctly (Item 14, item mean=3.78) and too much emphasis on MAE as a quality indicator for nursing care (Item 15, item mean=3.62). The weakest perceived barrier was overall reporting process (standardized mean=2.99). In the reporting process, however, respondents indicated that they somewhat agreed with too much time for filling out MAE reports (item five, item mean=3.76) as a greater barrier to MAE reporting. Important findings in this study were that fear and administrative barriers were the top two perceived barriers to MAE reporting. Similar findings were supported in previous

studies by using the same study instrument (Blegen et al., (2004); Wakefield et al., 1996; Wakefield et al., (1999). Chiang and Pepper (2006) conclude that nurses are apt to not report MAEs because of varied barriers in reporting processes. However, the comparisons of reporting barriers by perceived and actual reporting rates among nurses warrants further investigation.

Literature Related to Theoretical Framework

Theory of planned behavior to predict nurses' intention. Ajzen's Theory of Planned Behavior (TPB) (1988) helps clarify the variables that are at the root of possible behavioral modifications. The TPB has been widely used to understand various behaviors in the field of health care (Armitage & Conner 2001). Furthermore, a systematic review shows that the TPB is very useful to explain healthcare professionals' behaviors and intentions (Godin et al., (2008). The TPB states that intention, one of the immediate determinants of behavior, depends on three constructs: attitudes, subjective norms, and perceived behavioral control (Ajzen, 1988). Those three components, which are designated as direct constructs, are respectively influenced by behavioral, normative and control beliefs.

Cote, Gagnon, Houme, Abdeljelil, and Gagnon (2012) conducted a predictive correlational design study using an extended TPB. The aim of the study was to identify the factors that influence nurses' intention to integrate research evidence into their clinical decision-making. A total of 336 nurses working in a university hospital participated in this research. Data were collected in February and March 2008 by means of a questionnaire based on an extension of the TPB. Descriptive statistics of the model variables, Pearson correlations between all of the variables, and multiple linear regression

analyses were performed. The results of the study indicated that nurses' intention to integrate research findings into clinical decision-making can be predicted by moral norm, normative beliefs, perceived behavioral control and past behavior. The researchers' study did not allow them to make a conclusion about the influence of attitude, subjective norm and behavioral beliefs on the prediction of intention (Cote et al., 2012). However, the study identified moral norm as the most important factor in the predictor of nurses' intention to integrate research findings into their clinical decision-making.

Theory of planned behavior to evaluate intention to report negative occurrence. Natan, Faour, Naamhah, Grinberg, and Klein-Kremer (2012) performed a study to examine whether the theory of planned behavior succeeds in predicting nursing and medical staff reporting of suspected child abuse. Natan et al. (2012) chose to focus on two of TPB model components: behavioral beliefs and normative beliefs. Behavioral beliefs are one's assumption that a certain behavior will lead to certain consequences (Natan et al., 2012). Whereas normative beliefs reflect one's subjective evaluation (i.e. belief) of how 'significant others' would expect him or her to act in performance or avoidance of the specific behavior, considering his or her motivation to act according to their opinion. The study sample size included 143 nurses and 42 doctors who treat children on a regular basis at a middle Israel hospital and in a large affiliated community-based clinic. These include nurses and doctors working in the pediatric departments, surgical departments, child psychiatry department, and newborn department, and in the emergency room at the hospital and in a child clinic in the community. The research data were gathered by means of the Child Abuse Report Intention Scale (CARIS). The scale was constructed based on the literature review and on Ajzen's TPB, and it examines the

effect of the theory's constructs on intention to report child abuse, and the effect of intention on actual behavior (reporting). The CARIS was developed to measure the research variables of (a) intended reporting behaviors, (b) knowledge, (c) subjective norms, (d) perceived behavioral control, and (e) attitude towards reporting child abuse. The final Cronbach's alphas for the subscales in this study ranged from 0.62 to 0.91. Descriptive statistics were used to describe all demographic and research variables. Pearson correlation coefficients were calculated for all observed variables in the extended TPB model. The research findings showed that the more decisive staff's subjective beliefs against child abuse, the higher their intention to report child abuse ($r = 0.15$, $P < 0.05$). A moderately positive correlation was found between views on punishing ($r = 0.23$, $P < 0.01$) and reporting suspected child abuse, and a highly positive correlation was found between views on professional responsibility ($r = 0.60$, $P < 0.01$) and reporting suspected child abuse. In addition, a weak positive correlation was found between perceived behavioral control and reporting suspected child abuse ($r = 0.15$, $P < 0.05$). Therefore, the stronger one's views against child abuse and the greater one's perceived professional responsibility to report such abuse, and one's sense of self-control of reporting, the higher one's intention to report and consequently also actually report the abuse. The results that emerged from the tests of the hypothesized model supported the TPB model in predicting nurses' and physicians' reporting behaviors of child abuse in Israel. Subjective beliefs, sense of behavioral control, negative views of child abuse and views of professional responsibility on this issue were significant predictors of reporting behaviors. Natan et al. (2012) concluded the TPB model succeeds in partly predicting medical and nursing staff reporting of suspected child abuse. This model can serve as a

basis for intervention plans aimed at developing medical and nursing simulations of coping with conflict issues involving child abuse in an attempt to eradicate and treat inadequate reporting (Natan et al., 2012).

Strengths and Limitations of Literature

The review of the literature provided the researcher with a thorough understanding of the studies that have been performed to date in regard to medication error incidence and the reporting of medication errors. Gladstone (1995) identified that the subject of drug administration errors is an area of major concern in healthcare. Kim et al. (2011) evaluated nurses' perceptions of medication errors and their contributing factors; the findings of their study indicated that 63.6 % of the study participants reported that they were involved in medication errors more than once in the past month and only 28.5% of them reported the errors formally. In another recent study by Hajibabaee et al. (2014) it was determined that the mean number of reported medication errors during three months was 1.3 errors per nurse, whereas the mean number of medication errors per nurse during that same period of three months was 19.5. Nearly two decades had passed from Gladstone's 1995 study identifying medication errors to be paramount issue to the healthcare industry to Hajibabaee's 2014 study, and yet there continues to be a significant deficit between the number of medication errors that occurred and those that were actually reported.

The review of the literature has also revealed contributory factors related to medication error occurrence, the highest ranked reasons for MAEs are: nurse fatigue and exhaustion (Armitage et al., 2010; Unver et al., 2012); heavy workload (Kim et al., 2011); unfamiliarity with the drug and failure to recheck (Kim et al., 2011). The scientific

studies concluded that the nurse stated barriers for reporting MAEs include: concern that reporting promotes blame rather than an examination of the system factors (Armitage et al., 2010); power hierarchy and face-saving concern (Chiang & Pepper, 2006); fear of possible negative comments from management and colleagues (Unver et al., 2012; Sarvadikar et al., 2010); quality management and peer relations (Chiang & Pepper, 2006); and lack of reporting system (Joolaee et al., 2011). However, in the most current study that was reviewed, Hajibabaee et al. (2014) determined that none of the individual or organizational characteristics had any significant influence on medication reporting, that it seems that nurses, regardless of their individual or organization characteristics, were not aware of the necessity of error reporting and the consequences of not reporting the errors (p. 308).

Over the last decade the healthcare industry has increasingly transferred from paper documentation methods to electronic documentation, and error-reporting is not an exception. Has electronic media created additional barriers to error reporting? This question was addressed by Lederman et al. (2013) in a case study into the impact of electronic error-reporting systems on nurse reporting of medical errors. The study findings determined that four types of access barriers were identified: log-in issues, computer availability, privacy, and age-related lack of ease with technology. In addition, nurses were concerned that electronic forms were less anonymous than paper forms because they could be linked to user identifiers and be more widely distributed than paper. However, the study focused specifically on only one electronic reporting software program; therefore, it is limited in its generalizability to all electronic reporting systems.

Through a review of the literature, two current studies have been examined that have utilized the theory of planned behavior (TPB) in regard to nurse decision-making behaviors. A study by Cote et al. (2012) used the TPB to predict nurses' intent to integrate research evidence into clinical decision making. The results of the study indicated that moral norm, normative and control beliefs, and past behavior are significant determinants in predicting nurses' intention to perform a specific behavior. The authors concluded that although their study was limited in that it was performed in a single university hospital, that given the strong predictive power of the theoretical model-approach, the theory could inform similar studies in other locations. In another study by Natan et al. (2012), the factors affecting medical and nursing staff reporting of child abuse was examined using the TPB. The study determined that the TPB model succeeds in partly predicting medical and nursing staff reporting of suspected child abuse and can serve as a basis for intervention plans aimed at developing medical and nursing simulation of coping with conflict issues in an attempt to eradicate and treat inadequate reporting.

Summary

Until the current study, performed by this author, the theory of planned behavior has not been utilized specifically in regard to understanding nurses' perceived barriers for reporting MAE. Measures need to be taken to further understand medication error reporting issues in order to be provided with the opportunity to address the underlying problems and prevent error occurrence (Gladstone, 1995; Kagan & Barnoy, 2013) The TPB has enabled the researchers of this study to gain insight into understanding nurses' intention when deciding whether to report MAEs. In addition, it was determined through

vigorous research that there have only been a few studies that have focused specifically on nurses' perceptions of barriers for reporting MAEs. Of these studies, one was performed in Tehran, Iran and the other was performed in Taiwan. Yet there haven't been any recent studies in the United States that have focused specifically on whether nurses continue to fear retribution as a barrier to reporting MAE. This study will further the evidence base for improving MAE reporting through a deeper understanding of nurses' inhibiting factors to report medication errors. It is through an enhanced awareness of errors that the healthcare system can learn ways to improve the system, thereby decreasing the likelihood of future error occurrence.

CHAPTER III

Methodology

Studies have shown that medication administration errors are a critical issue in healthcare and more importantly preventing this type of error depends on precise reporting (Mayo & Duncan, 2004). Additional studies have noted inhibiting factors for nurses reporting medication errors to include: fear of reaction by supervisor, or colleagues (Unver et al., 2012); being criticized or stigmatized as unqualified; (Sarvadika et al., 2010); causing negative impressions on patients (Mayo & Duncan, 2004); concern that reporting promotes blame rather than an examination of the system factors (Armitage et al., 2010). The purpose of this MSN thesis study was to evaluate whether nurses avoid reporting MAEs due to perceived fears of retribution.

Implementation

Registered nurses providing direct or indirect patient care to patients admitted to the hospital were invited to participate in the study. Study consent for survey completion was distributed to all nurses via placement in his/her individual departmental mailbox. The consent included the investigators' contact information, the instructions for accessing the electronic survey, and the timeframe in which the survey would be accessible. Potential participants were informed that their participation in the survey served as their implied consent for the study. A quantitative cross-section correlative design was used to implement the study. The Medication Administration Error Reporting (MAE) Survey was utilized as the survey instrument. Survey responses were collected electronically in a password protected software program. Responses of each question were aggregated into collective results by electronic aggregation prior to analysis of the data. The researcher

received the results as numerical percentages for each question. The results were analyzed by the implementing facility's statistician. Data was recorded electronically in the Principle Investigator's password-protected computer.

Setting

The study took place during the month of October in the year of 2014 at three not-for-profit urban education and research hospitals affiliated under one governing healthcare organization in the southeastern United Sates.

Sample

The study sample was compromised of registered nurses working on various inpatient units including, but not limited to: medical-surgical, cardiac, critical care, obstetrics, preoperative, and post-acute rehabilitative units. The subjects were recruited through convenience sampling, with 48 participants being used for the study. All registered nurses employed by the organization who provide care to patients admitted to the hospitals were invited to participate. The researcher distributed the study consent and instructions for participation via placement in nurses' individual departmental mailboxes. Inclusion criteria for involvement in the study was that each participant must be a registered nurse who currently works providing direct/indirect inpatient care, including full-time, part-time, and contract personnel. There were not any gender, age, racial, or ethnic limitations for the sample.

Design

The study conducted has a cross-sectional and correlational quantitative design with self-administered questionnaires in which the relationship between the reporting of medication administration errors and nurse perceived reporting barriers were studied.

Participants were asked their opinions regarding reasons why medication errors occur; reasons why medications errors are not reported; and to estimate the percentage of medication errors actually reported. Nurses' perceptions regarding reporting MAEs were measured by the Medication Administration Error (MAE) Reporting Survey developed by Wakefield et al.(2005). The study took place in the month of October in the year 2014, in three teaching and research hospitals located in the southeastern United States, after the approval of the study by the research implementation site and a university's Institutional Review Board (IRB) committees.

Consents were distributed to all registered nurses who provide inpatient nursing care via placement of the informed consent (Appendix A) and survey instructions in the nurses' departmental mailboxes. The informed consent form provided the purpose of the study, subjects' rights for participating in research, potential risks and benefits, and the contact information for the researcher, and the institutional site, and the university's IRB. Participation in the survey was entirely voluntary. Participants were informed on the consent form that they may choose to answer or not answer any particular question and had no obligation to complete answering the questions once they begin. Participants did not have any incentives to be involved in the study. Consent to participate was implied by completion of the survey instrument. Nurses were asked to complete the survey instrument within the following two weeks. Completion of the survey instrument took approximately 5-10 minutes. Data was collected electronically in a password protected software program used by the research facility for electronic focus study surveys. Participants' individual responses were not identifiable. The aggregated data was

retrieved from the password protected software by the research facility's data quality analyst. The data was analyzed for statistical measures by the researcher.

Protection of Human Subjects

This study involved Institutional Review Board (IRB) approval from the implementing facility and university. The research team was required by the hospital IRB to demonstrate competency in ethical research by completing the Collaborative IRB Training Initiative (CITI) course. The student investigator completed the CITI program. There were little or no risks to the participants. The participants possibly experienced mild anxiety or psychological distress related to possible feelings of guilt or embarrassment. Participants were informed that if at any time during the study, the participant experienced any feelings of psychological discomfort while answering the survey questions that he or she could decline to participate and could withdraw by exiting the survey before the survey completion. Participants' individual responses were not identifiable. Supervisors and colleagues did not have access to any individual-specific identifiable responses. The research facility's data quality analyst was the only person who had access to the survey results in order to run the data report for the researcher. The facility's administration, employees, collegiate faculty, and researcher did not have access to any information identifying who participated in the survey. All documents were stored in a secure manner by the research team during data collection. All documents were stored in the researcher's encrypted and password protected computer during data collection and analysis. Upon study completion, all data in connection with the survey was turned into the university's School of Nursing.

Instruments

Nurses' perceptions regarding reporting MAEs were measured by the Medication Administration Error (MAE) Reporting Survey developed by Wakefield, Uden-Holman, and Wakefield. Permission to use the instrument was granted to this investigator by the author of the survey instrument (Appendix B). The instrument which was used in this study had validity and reliability demonstrated in prior studies. The MAE Reporting Survey contains 66 questions in three general content areas; (a) reasons why medication errors occur (29 items), (b) reasons why medication errors are not reported (16 items), both with a six-point Likert-type scale, where responses range from 1 = strongly disagree to 6 = strongly agree. In the third section of the survey, respondents were asked to estimate the percentage of errors reported on their respective units for specific types of non-intravenous (IV) and intravenous-related errors (21 items), with a ten-point scale. Each point on the scale represents a range of the percentage of MAEs being reported (e.g., category 2 = 21 to 30 percent). Respondents were also asked to make a global estimate of the percentage of all the non-IV and IV errors reported on their respective units. The reliability of the instrument has been assessed using Cronbach's Coefficient Alpha, which has demonstrated internal consistency within acceptable ranges, with a mean of .86 (Wakefield, et al., 2005). The second part of the study's questionnaire contained 12 demographic questions that asked the participant to circle the best response regarding their level of education, frequency of medication administration, primary shift worked, and type of nursing unit (Appendix C).

Data Collection

Data was collected electronically in a password protected software program used by the research facility site for electronic focus study surveys. Responses of each question were aggregated into collective results by electronic aggregation prior to analysis of the data. Written informed consents were distributed to all registered nurses who provide inpatient nursing care via placement in departmental mailboxes. The informed consents included the electronic survey access instructions. Consent for participation was determined by the completion of the survey instruments.

The questionnaire that was used is the Medication Administration Error (MAE) Reporting Survey. Responses of each question were aggregated into collective results by electronic aggregation prior to analysis of the data. The data was retrieved by the research facility's data quality analyst and was recorded as an electronic document. The scoring of the data was recorded electronically via the researcher's computer in order to interpret statistical measures. The data analyst and the student researcher's computer remained password protected with encryption software installed.

Data Analysis

Data analyses were performed by the student researcher. The data was analyzed by calculating means and standard deviations for individual items and for subscales, and correlational analyses were conducted to determine if an association exists between perceived reporting barriers and perceived frequency of reporting. Confidence intervals were conducted to evaluate the reliability of the sample. The researcher utilized descriptive analyses to report the results. To score the survey in this study, means and standard deviations were calculated as numbers and percentages for individual items and

subscales. Subscale values are calculated by adding the value for each item and dividing by the items in the subscale (i.e. calculating the mean of the items in the subscale) (Wakefield et al., 2005). Descriptive statistics were shown in numbers (n) and percentages (%) for the variables.

Summary

The purpose of this MSN thesis was to examine whether nurses avoid reporting MAEs due to perceived fears of retribution. The study conducted has a cross-sectional and correlational quantitative design with self-administered questionnaires in which the relationship between reporting of medication administration errors and nurse perceived fear of retribution was studied. The study took place during the month of October in the year 2014, in three teaching and research hospitals located in the southeastern United States.

CHAPTER IV

Results

The current study is entitled 'Exploring the relationship between reporting medication errors and nurse fear of retribution.' Medication errors are a critical issue in the healthcare industry. In 1999, the Institute of Medicine (IOM) issued a report, *To Err is Human: Building a Safer Health System*. The report estimated medication errors to account for more than 7,000 deaths annually. Medication errors negatively affect patients, nurses and organizations, and reduce healthcare efficiency. Reporting of Medication Administration Errors (MAEs) is essential to developing strategies to prevent and reduce medication errors because the healthcare community can learn from mistakes. Nurses are the front line of defense to intercept and report medication errors. This researcher's aim was to answer the research question: "What is the nurse's perception of why medication administration errors are not reported on his/her unit?" The study was conducted in three affiliated teaching and research hospitals in the southeastern United States, during the month of October, in the year 2014.

Sample Characteristics

Over 300 registered nurses who currently work providing direct/indirect inpatient care, including full-time, part-time, and contract personnel were invited to participate in the study. Of the informed consents distributed, 48 registered nurses chose to participate by completing the questionnaire. The participants were comprised of registered nurses who work in cardiac, medical-surgical, critical care, obstetrics, preoperative, and post-acute rehabilitative units. Of the 48 study participants, 28 chose to answer the demographic questionnaire. The participants who answered the demographic

questionnaire varied in age from 20 to 65, with the majority of nurses falling into the age category of 30-39 (Figure 2). The educational degree held by the participants ranged from an Associate's Degree in nursing (8) to a Master's Degree in nursing (1), with the majority of nurses holding a Baccalaureate Degree in nursing (19) (Figure 3). The frequency of medication administration reported by the respondents also varied from the response of "rarely" to "frequently", with the majority of participants indicating that they frequently administer medications.
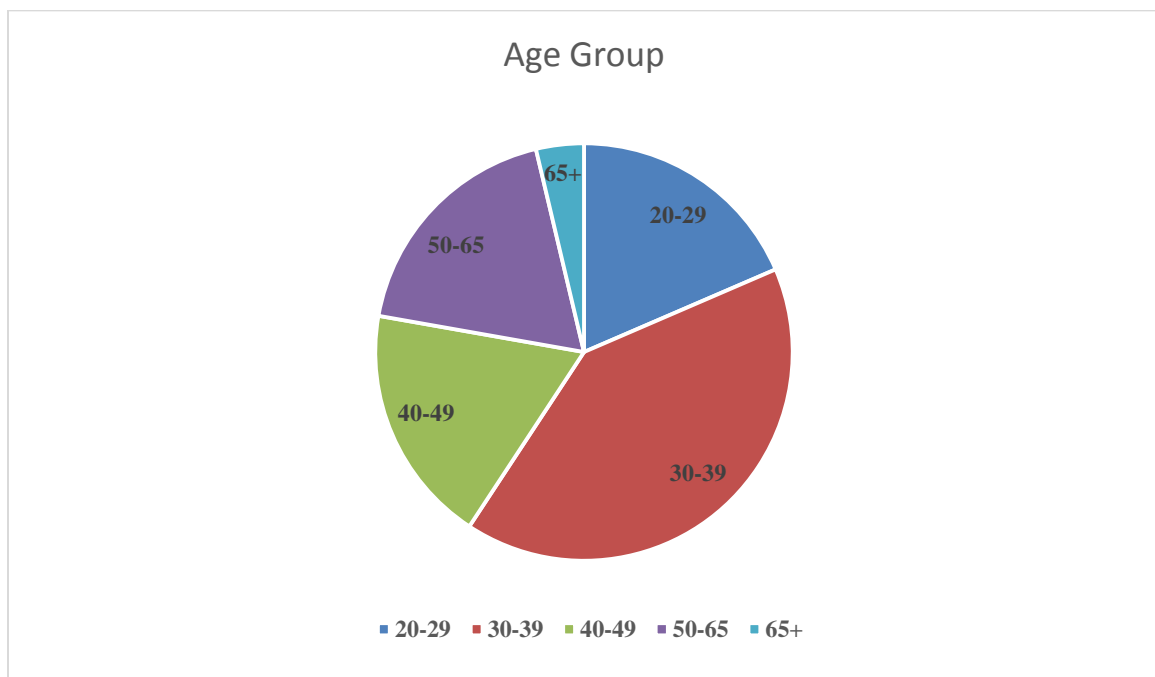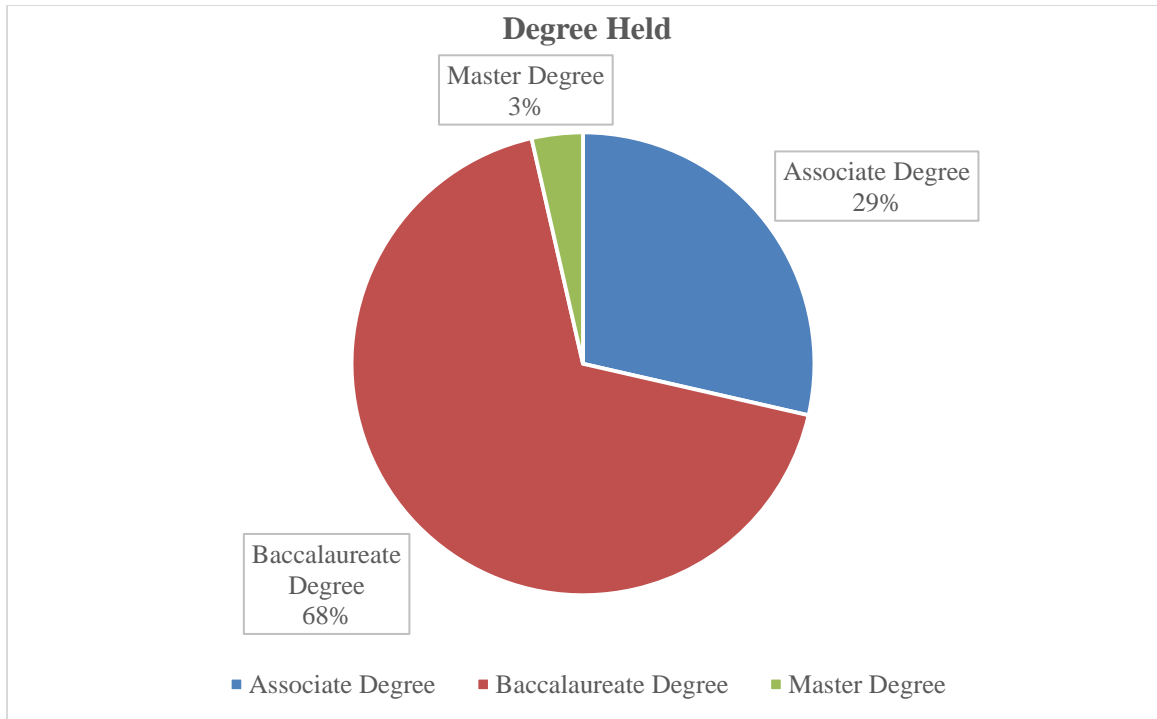

Figure 2: Participant Age Group

Figure 3: Participant Educational Degree Held

Major Findings

In order to score the data, descriptive analyses were conducted by calculating means and standard deviations for individual items and for subscales. For Section A, "Reasons Why Medication Errors Occur on Your Unit", question items were placed into groups based on the question type (i.e., nurse related, organization related, pharmacy related, physician related, and other). As shown in Table 1, concerning reasons for medication error occurrence, the group standardized means ranged from 3.98 to 2.67, indicating that the reasons for medication error occurrence were located between slight agreement and slight disagreement. Compared to the standardized mean of each subscale, manufacturing related (standardized mean=3.98) and physician related (standardized mean=3.84) were considered the two major reasons that contribute to the occurrence of medication errors. Items of the manufacturing related subscale were items 1 (i.e., the names of medications are similar), 2 (i.e., different medications look alike), and 3 (i.e., the packaging of many medications is similar). Items of the physician related subscale with means greater than 4.0 (slightly agree) were items 4 (i.e., physicians' orders are illegible), and 5 (i.e., physicians' medication orders are not clear). The additional items with standardized means greater than 4.0 (slightly agree) was Item 11 (i.e., pharmacy does not label the medication correctly), of the pharmacy related subscale; and Item 22 (i.e., nurses are interrupted while administering medications to perform other duties), of the nursing related subscale. Item 22 had the highest standardized mean (4.50), indicating that nurses perceive that being interrupted while administering medications is the number one contributing factor for reasons medication errors occur.

Table 1:

Reasons Why Medication Errors Occur

Items	Group M(SD)	Item M (SD)
Manufacturing Related	3.98 (0.06)	
Similar names (N=48)		4.04 (1.44)
Similar packaging (N=48)		3.98 (1.55)
Medications appear similar (N=48)		3.92 (1.44)
Physician Related	3.84 (0.45)	
Physician's orders are illegible (N=48)		4.42 (1.30)
Physician's orders are unclear (N=48)		4.06 (1.33)
Physician changes orders frequently (N=47)		3.89 (1.48)
Physician uses abbreviations (N=47)		3.62 (1.60)
Verbal orders are used instead of written orders (N=47)		3.21 (1.59)
Organization Related	2.82 (0.56)	
Inadequate staffing levels (N=46)		3.41 (1.54)
Medications for one team of patients cannot be passes within an acceptable time frame (N=46)		3.13 (1.53)
Unit staff do not receive enough in-services on new medications (N=47)		3.04 (1.56)
Nurses get pulled between teams and other units (N=46)		2.50 (1.75)
Difficult to look up information on medications (N=47)		2.00 (1.37)
Pharmacy Related	2.78 (0.73)	
Medications not labeled correctly (N=47)		4.04 (1.35)
Pharmacy not available 24 hours a day (N=47)		3.68 (1.16)
Frequent substitution of drugs (N=47)		3.66 (1.49)
Delivers incorrect doses (N=47)		2.38 (1.05)
Medications not prepared correctly (N=47)		2.26 (1.41)
Nurse Related	2.67 (0.88)	
Interrupted while administering medication (N=46)		4.50 (1.46)
Poor communication between physician and nurse (N=47)		3.68 (1.16)
Medication schedules are delayed (N=46)		3.00 (1.43)
Equipment malfunctions or is not set up correctly (N=45)		2.33 (1.11)

Orders are not transcribed correctly (N=45)	2.24 (1.51)
Unaware of an allergy (N=45)	2.22 (1.24)
Do not adhere to the approved medication administration procedure (N=46)	2.07 (1.14)
Errors made in Medication Kardex (N=45)	2.07 (1.29)
Limited knowledge about medications (N=46)	1.96 (1.15)
Other	3.34 (0.45)
Many patients on same or similar medications (N=47)	3.66 (1.49)
Patients are off the ward (N=45)	3.02 (1.42)

Note: Range=1 (strongly disagree) to 6 (strongly agree)

For Section B, "Reasons Why Medication Administration Errors are not Reported on Your Unit", question items were placed into groups based on the question type (i.e., fear, administrative barriers, reporting process). As shown in Table 2, concerning the barriers to MAE reporting, the group standardized means ranged from 3.84 to 2.91, indicating that the barriers to MAE reporting were located between slight agreement and slight disagreement. Compared to the standardized mean of each subscale, fear (standardized mean=3.84) was considered as a major barrier to reporting medication errors. Items of the fear subscale with item means greater than 4.0 (slightly agree) were items 42 (i.e., nurses could be blamed if something happens to the patient as a result of the medication error), 37 (i.e., the patient or family might develop a negative attitude toward the nurse, or may sue the nurse if a medication error is reported), and 40 (i.e., nurses fear adverse consequences from reporting medication errors). The other minor fear items were not recognizing MAEs (Item 31), physician's reprimand (Item 39), being recognized as incompetent (Item 36), with item means ranging from 2.97 to 4.00.

Table 2

Perceived Barriers to Reporting Medication Errors

Items	Group M (SD)	Item M (SD)
Fear	3.84 (0.49)	
Being blamed for MAE results (N=31)		4.26 (1.39)
Patient's negative attitude (N=31)		4.16 (1.49)
Adverse consequences from reporting (N=31)		4.10 (1.68)
Being recognized as incompetent (N=31)		4.00 (1.44)
Physician's reprimand (N=31)		3.58 (1.75)
Do not recognize MAEs occurred (N=31)		2.97 (1.43)
Administrative Barrier	3.74 (0.61)	
No positive feedback (N=31)		4.58 (1.39)
Focus on individual rather than system factors to MAEs (N=30)		3.80 (1.45)
Much emphasis on MAE as nursing quality provided (N=30)		3.40 (1.59)
Administrators' responses to MAEs do not match the severity of the errors (N=31)		3.19 (1.22)
Reporting Process	2.91 (0.50)	
Think MAEs not important enough to be reported (N=31)		3.65 (1.5)
Too much time for filling reports (N=31)		3.39 (1.84)
Too much time for contacting physicians (N=31)		2.87 (1.69)
Unclear MAE definition (N=31)		2.61 (1.43)
Unrealistic expectation for administrating drugs correctly (N=31)		2.52 (1.46)
Disagreement over MAE (N=31)		2.42 (1.18)

The next strongest perceived barriers were administrative barriers (standardized

mean=3.74). These barriers indicated administrators' management and attitudes toward

MAEs. The primary administrative barrier was no positive feedback being given for

passing medications correctly (Item 43, item mean=4.58) and focus on individual rather

than system factors to MAEs (Item 45, item mean=3.80). The weakest perceived barrier

to MAE reporting was the overall reporting process (standardized mean=2.91). In the

reporting process, however, respondents indicated that they somewhat agreed that nurses

may think that MAEs are not important enough to be reported (Item 35, item mean=3.65)

as the greater barrier to MAE reporting.

In order to test the reliability of the study's sampling, the researcher employed

statistical tests to evaluate the confidence intervals of the subscale means for the

responses of Section B. As shown in Table 3, the findings indicated that because of the

way the sampling was done and the value of the standard error of the sample, the

researcher can conclude with 95% confidence that the sample mean for the study was

within a 0.527 margin of error of the actual population mean.

Table 3

Confidence Intervals for Section B

Group	N	x bar	σ	Lower Bound	≤ μ ≤	Upper Bound
Administrative Barrier	4	3.74	0.61	2.767	≤ μ ≤	4.718
Fear	6	3.84	0.49	3.332	≤ μ ≤	4.358
Reporting Process	6	2.91	0.50	2.383	≤ μ ≤	3.437

For Section C, "Percentage of Each Type of Error Reported on Your Unit", participants indicated the frequency that medication errors are reported. Items were broken down into two subscales for "types of non-IV medication errors" and "types of IV errors". In Item 66, participants were also asked their perception for what percentage of all types of medication errors, including IV and non-IV are actually reported on their unit. A scale from 1 to 10 was used in order for participants to indicate the percentage, as follows: 0-20 percent=1, 21-30 percent=2, 31-40 percent=3, 41-50= 4, 51-60 percent=5, 61-70 percent=6, 71-80 percent=7, 81-90 percent=8, 91-99 percent=9, 100 percent= 10. As shown in Table 4, the group standardized mean for types of non-IV medication errors was 4.02 (standard deviation=3.37). The individual items with the least reported non-IV medication errors were items 52 (i.e., medication is given, but has not been ordered by the physician), with a standardized mean of 3.56, indicating only 41-50 percent of errors are reported; and 46 (i.e., wrong route of administration), with a standardized mean= 3.34, indicating 40.2 percent of errors are reported. As shown in Table 4, the group standardized mean for types of IV medication errors reported was 3.78 (standard deviation=3.29). The individual items with the least reported non-IV medication errors were items 55 (i.e., wrong method of administration) with a standardized mean of 3.00; 63 (i.e., given to a patient with a known allergy) with a standardized mean of 3.36; 65 (i.e., wrong rate of administration), with a standardized mean of 3.39, with all items indicating 37.8 percent of errors reported. In Item 66, participants indicated that an overall percentage of 37.9 of all types of medication errors are reported on their unit (standardized mean=3.79, standard deviation=2.73) (Figure 4).

Table 4

Percentage of Each Type of Error Reported

| Items	Group M (SD)	Item M (SD)
Types of Non-IV Medication Errors	4.02 (3.37)	
Wrong dose		5.22 (3.47)
Wrong drug		4.75 (3.71)
Wrong patient		4.13 (3.77)
Wrong time of administration		3.94 (3.14)
Medication is omitted		3.84 (3.16)
Administered to patient with a known allergy		3.75 (3.41)
Medication administered after discontinued		3.63 (3.15)
Medication not ordered is given		3.56 (3.25)
Wrong route of administration		3.34 (3.28)
Types of IV Medication Errors	3.78 (3.29)	
Wrong dose		5.18 (3.61)
Wrong drug		4.54 (3.69)
Wrong patient		4.18 (3.70)
Wrong time of administration		3.82 (2.87)
Wrong fluid		3.68 (3.21)
Medication is omitted		3.57 (3.05)
Medication not ordered is given		3.43 (3.34)
Medication administered after discontinued		3.43 (3.34)
Wrong rate of administration		3.39 (3.11)
Administered to patient with a known allergy		3.36 (3.31)
Wrong method of administration		3.00 (2.99)
Overall Reported Percentage	3.79 (2.73)	
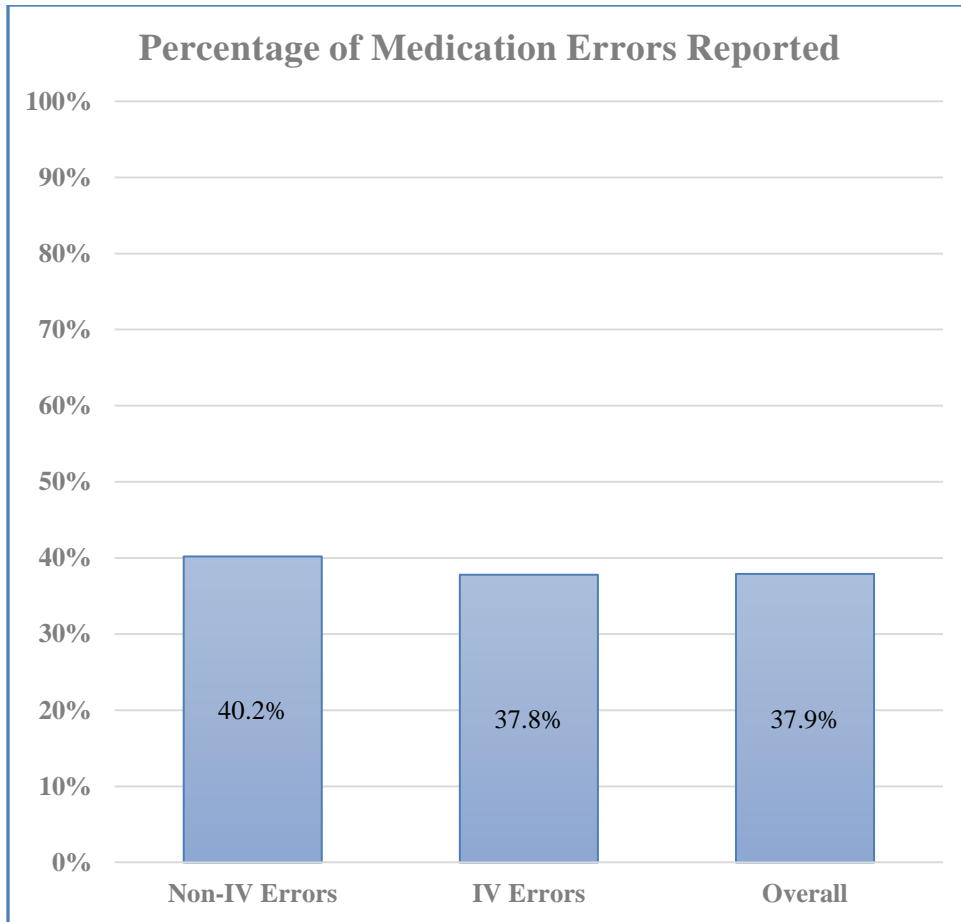
Figure 4: Percentage of Medication Errors Reported

Regarding the demographic characteristics and personal experiences of MAE, no differences were found in the barriers according to nurses' age, education, and primary shift worked. This finding is consistent with the study performed by Chiang and Pepper (2006). However, in other studies, age and length of working experience were negatively correlated to the reporting barriers (Blegen et al., 2004). For Item 66 (i.e., percentage of all types of medication errors that are actually reported on your unit), correlational analyses were conducted in order to determine if an association exists between perceived MAE reporting barriers and nurses' perceptions of the frequency of medication error reporting. The findings indicated that there was not any correlation found between nurses who agreed that MAEs are underreported and their perceived barriers to reporting errors. This was evidenced by a linear correlation of r=0.839 between less agreement with reporting barriers and less perceived frequency of medication error reporting (Figure 5).
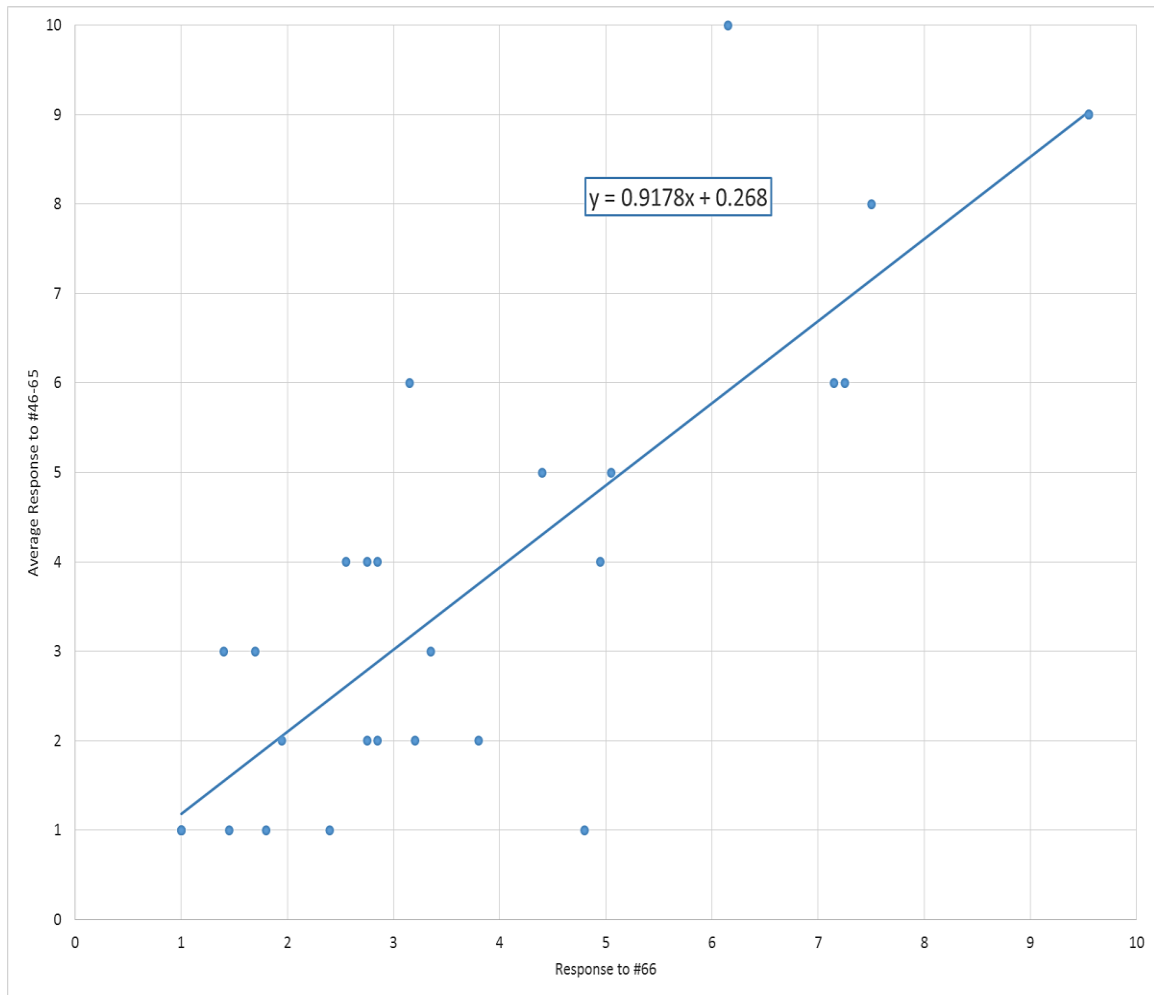
Note: y axis= lower numbers represent fewer barriers; x axis= lower numbers indicate less frequency of MAE reporting

Figure 5: Correlation between MAE Reporting Barriers and Frequency of Reporting

Summary

The researcher collected data regarding: (1) reasons why medication errors occur on the unit, with subscales of nurse related, organization related, pharmacy related, physician related, and other; (2) reasons why medication errors are not reported on the unit, with subscales of fear, administrative barrier, and reporting process; (3) percentage of each type of error reported on the unit, with subscales of non-IV medication errors, IV errors, and overall percentage of all type of errors reported. The surveys were distributed to over 300 registered nurses who were currently employed at three affiliated teaching and research hospitals in the southeastern United States. There were a total of 48 registered nurses who participated in the study, with 28 respondents choosing to answer the demographic questionnaire. The participants indicated that they provide inpatient nursing care to patients admitted to cardiac, medical-surgical, critical care, obstetrics, preoperative, and post-acute rehabilitative units. The data was analyzed by calculating means and standard deviations for individual items and for subscales, and correlational analyses were conducted to determine if an association exists between perceived reporting barriers and perceived frequency of reporting. Confidence intervals were conducted to evaluate the reliability of the sample. The researcher utilized descriptive analyses to report the results.

CHAPTER V

Discussion

Medication errors negatively affect patients, nurses and organizations, and reduce healthcare efficiency. Reporting of Medication Administration Errors (MAEs) is essential to developing strategies to prevent and reduce medication errors because the healthcare community can learn from mistakes. Nurses are the front line of defense to intercept and report medication errors. The purpose of this MSN thesis study was to examine whether nurses avoid reporting MAEs due to perceived fears of retribution. Nurses' perceptions regarding reporting MAEs were measured by the Medication Administration Error (MAE) Reporting Survey developed by Wakefield, Uden-Holman, and Wakefield. The instrument which was used in this study had validity and reliability demonstrated in prior studies. The MAE Reporting Survey contains 66 questions in three general content areas; (a) reasons why medication errors occur (29 items), (b) reasons why medication errors are not reported (16 items), and (c) percentage of each type of error reported (21 items). Through the identification of nurses' perceived barriers to reporting MAEs, the healthcare system is provided with an opportunity to increase nurses' reporting of medication errors. Thereby, organizations are provided with the information necessary to learn from these mistakes and reduce the likelihood of future error occurrence, which in turn improves the overall safety and positive outcomes of patients.

Implication of Findings

Section A of the Medication Administration Error (MAE) Reporting Survey asked individuals to indicate the extent to which he/she agree regarding reasons that contribute to why medication errors occur on his/her unit. Of Section A, manufacturing related and

physician related category groups were identified by nurses as being the major contributory reasons for the occurrence of medication errors, as indicated by an overall mean of participants in slight agreement. As reported in other studies, nurses perceive that the main contributory factors for MAE occurrence are as follows: that medications have similar names, (Aronson, 2004; Food and Drug Administration (FDA), 2009; IOM, 1999); medications look alike (FDA, 2009; IOM, 1999); medications have similar packaging (FDA, 2009, IOM, 2009); orders written by physicians are illegible (Mayo & Duncan, 2004); physician orders are not clear (Cook, Hoas, & Guttmannova, 2004; Mayo & Duncan, 2004); the pharmacy does not label medications correctly (NCC MERP, 2014); and nurses are interrupted while administering medications (Armitage et al., 2010; Kim et al., 2011, Tucker, Edmonson, & Spear, 2002). In the current study, nurses being interrupted while administering medications were the number one cause that contributed to medication errors, whereas in previous studies, "distraction" was ranked as the second most popular choice (Unver et al., 2012; Sezgin, 2007).

In Section B of the MAE Reporting Survey, participants were asked to indicate the extent to which he/she agreed with reasons that contribute to why errors are not reported on his/her unit. Of Section B, fear and administrative barriers were identified in this study as the top two perceived barriers to MAE reporting, as indicated by an overall mean of participants in slight agreement. The fear subscale had the highest standardized mean of 3.84 (SD=0.49). As reported in other studies, nurses perceive that the main fear-related barriers to reporting MAEs are as follows: that nurses could be blamed if something happens to the patient as a result of the mediation error (Hand & Barber, 2000; Osborne et al., 1999; Mayo & Duncan, 2004; Sarvadikar et al., 2010; Uribe et al., 2002);

the patient or family might develop a negative attitude toward the nurse or may sue the nurse if a medication error is reported (Blegen et al., 2004; Luk, Ng, Ko, & Ung, 2008; Mayo & Duncan, 2004; Osborne et al., 1999; Uribe et al., 2002); and nurses fear adverse consequences from reporting medication errors (Mrayyan et al., 2007; Potylycki et al., 2006). Similar findings were also supported in previous studies by using the same study instrument (Blegen et al., 2004; Chiang & Pepper, 2006; Wakefield et al., 1996; Wakefield et al., 1999).

The current study identified administrative barriers as the second chosen perceived barrier to MAE reporting (standardized mean= 3.74, SD=0.61). These barriers indicated administrator's management and attitudes toward MAEs. The primary administrative barriers chosen were not receiving positive feedback for passing medications correctly and focus on individual rather than system factors to MAEs. In previous studies, administrative barriers were ranked as having an equal or greater impact on MAE reporting than the fear items (Wakefield et al., 1996; Wakefield et al., 1999). In the current study there was an identified difference of standardized means between the fear (3.84) and administrative barrier (3.74) subscales. However, the individual item 'no positive feedback is given for passing medications correctly' had the greatest mean (4.58) of all the potential barriers, indicating that nurses moderately agree that this is a barrier to reporting medication errors. This result differs greatly from the findings reported by Chiang and Pepper (2006) study, which reported a standardized mean of 3.78 for the 'no positive feedback' barrier. This finding is important because it demonstrates an opportunity for healthcare organizations to improve organizational processes by offering positive reinforcement to the nursing staff through recognition of their efforts for

performing the functions of medication administration in a safe manner. Other than the individual item 'no positive feedback', the extent of American nurses' perceptions of fear and administrative barriers were nearly equal to those reported in the Taiwan study performed by Chiang and Pepper (2006). These similar findings may reveal that MAE reporting barriers are similar among nurses in different locations.

The weakest perceived MAE reporting barrier was the subscale 'reporting process' (standardized mean= 2.91, SD= 0.50). This finding is similar to the study performed by Chiang & Pepper (2006) who used the same study instrument. However, in other studies, the reporting process barrier was perceived as being a greater barrier to reporting (Maidment & Thorn, 2005; Uribe et al, 2002). In the current study, the finding that nurses slightly agree that the reporting process is a barrier to reporting supports the assumption that nurses could be concerned that electronic reporting systems are less anonymous than paper forms because they could be linked to user identifiers (Lederman et al., 2013). In the current study, the primary reporting process barrier that was identified was 'nurses may not think the error is important enough to be reported' (standardized mean= 3.65). This result differs from Chiang and Pepper (2006) whose findings indicated 'too much time for filing reports' as the primary reporting process barrier. The current study found no significant relationship between error reporting obstacles and age, level of education, and primary shift worked. Therefore it seems that nurses, regardless of their individual and organizational characteristics, were not aware of the necessity of error reporting and the consequences of not reporting errors (Hajibabaee et al., 2014; Kagan & Barnoy, 2013; Kim et al., 2011; Mayo & Duncan, 2004; Osborne et al., 1999).

In section C, 'Percentage of Each Type of Error Reported', the least reported non-IV medication errors were 'medication is given, but has not been ordered by the physician', indicating only 41-50 percent of errors are reported; and 'wrong route of administration', indicating 40.2 percent of errors are reported. The individual items with the least reported non-IV medication errors were 'wrong method of administration'; 'given to a patient with a known allergy'; 'wrong rate of administration', all items indicating 37.8 percent of errors reported. In Item 66, participants indicated that an overall percentage of 37.9 of all types of medication errors are reported on their unit. The current study's findings indicated that there was no correlation found between MAE reporting barriers and an underreporting of errors. These results were different from previous studies that found a relationship between perceived barriers and nurses' willingness to report MAEs (Chiang & Pepper, 2006; Wakefield et al., 1996).

Application to Theoretical/Conceptual Framework

In this study, the researcher utilized a nurse-borrowed theory from the behavioral sciences—the theory of planned behavior (TPB) (Ajzen, 1988). According to TPB, a person's behavior is determined by his/her intention to perform the behavior and that this intention is, in turn, a function of his/her attitude toward the behavior and his/her subjective norm. The TPB infers that the best predictor of behavior is intention. Intention is the cognitive representation of a person's readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior. This intention is determined by three things: their attitude toward the specific behavior, their subjective norms, and their perceived behavioral control. Feng and Wu (2005) found that high intention to report may affect actual reporting; however, the current study did not examine actual reporting

frequency, rather the researcher only examined nurses' perceptions of MAE reporting frequency. Other research studies have identified that subjective norm is the TPB theoretical construct that correlates the least with the behavior (Godin et al., 2008), and have recently suggested that the addition of variables to the TPB can significantly increase its capacity to predict intention (Cote et al., 2012). Godin, Conner, and Sheeran, (2005) have shown that by controlling the attitude, subjective norm, and perceived behavioral control, moral norm improves the prediction of intention to adopt a given behavior. Moral norm refers to a person's feeling of moral obligation towards performing a given behavior. Moral norm also takes into consideration the ethical dimension of healthcare professionals' behaviors. The moral norm and perceived behavioral control are the most important variables in the prediction of nurses' intention to make clinical decisions (Cote et al., 2012).

The TPB model succeeds in partly predicting nursing staff reporting of medication errors. Subjective beliefs, sense of behavioral control, and negative views about medication error reporting are potential predictors of reporting behaviors; however, due to the researcher not finding a correlation between reporting rates and perceived barriers to reporting, these precedents to intention were not directly evidenced in this study. The researcher believes the TPB model, with the addition of the moral norm, can serve as a basis for intervention plans aimed at developing nursing simulations of coping with conflict issues involving personal experiences with medication errors in an attempt to eradicate and treat inadequate reporting of MAEs.

Limitations

This study had cross-sectional and correlational quantitative design with self-administered questionnaires in which the relationship between reporting of medication administration errors and nurse perceived fears of retribution were studied. The limitations of this study included a convenience sampling method and a relatively low return rate (16%). The study's vulnerability to volunteer and generalizability bias is high due to small sample size of 48 participants, and the restriction to only three hospitals under one governing organization. Due to the study being volunteer-based the study's participants were likely interested in medication error. In addition, self-reporting is believed by many researchers to limit a study due to self-report bias in assessing adherence to guidelines (Adams, Soumerai, Lomas, & Ross-Degnan, 1999), but in regard to medication errors, it still remains one of the most common and practical means of detecting and estimating error incidence (Balas, Scott, & Rogers, 2004; Mrayyan et al., 2007).

Further limitations of this study included that only 28 out of 48 total participants completed the demographic portion of the questionnaire. The demographic instrument used in the survey asked the participants to indicate their age group and the type of nursing unit to which their responses apply. Therefore, the researcher believes that these two questions being included together on the demographic questionnaire might have inhibited participants from completing the demographic instrument out of fear that they could be identified. In addition, the researcher found no correlation between MAE reporting barriers and the actual perceived frequency of reporting MAEs. This is believed to be a response bias due to the questions being formulated in a manner in that all items

were arranged in the same order for the participants to indicate the extent to which he/she agreed or disagreed with the questions. It is recommended by the researcher that future studies rearrange the individual question items in a manner that will avoid this potential response bias.

Implications for Nursing

The reporting of MAE continues to be a critical problem in the healthcare industry as evidenced by the low amount of medication errors that are reported and the perceived barriers to reported MAEs. An opportunity exists for the healthcare industry to improve processes at the national and the organizational level. The current study identified that nurses perceive that the main contributory factors for MAE occurrence are that medications have similar names, medications look alike and that medications have similar packaging. The FDA is currently guiding the medication manufacturing industry on ways to improve the appearance of medications, labels, and the practices for naming drugs (FDA, 2009) with the goal to decrease medication errors related to these identified contributory causes.

The current study also identified that orders written by physicians are illegible and physician orders are not clear. This information provides healthcare organizations with the opportunity to improve the process in which prescriber orders are written. Healthcare organizations can utilize this information to incorporate electronic order entry to decrease the likelihood of error confusion by using an order template to enter the medication order; thereby making orders clear and eradicating illegible orders.

In this study, the number one contributory cause for error occurrence is that nurses are interrupted while administering medications. This finding supports numerous

other studies (Armitage et al., 2010; Kim et al., 2011, Tucker et al., 2007; Sezgin, 2007;

Unver et al., 2012). Researchers at NASA have actually argued that interruptions are

critical cues in multi-tasked environments such as healthcare, and can promote

productivity (Walji, Johnson-Throop, Malin, & Zhang, 2004). However, resourceful and

highly adaptive nurses who normalize interruptions can also serve to hide away

organizational weaknesses (Tucker & Edmonson, 2003). The differing perspectives on

interruptions demands that errors must be contextualized, by the MAE reporter,

supporting the argument that measures such as redesigning work procedures and

promoting good relationships among staff members will decrease the incidence of

medication errors and increase reporting rates (Karow, 2002). Through the promotion of

good relationships among staff members, nurses are provided the opportunity to

collaborate in efforts that will reduce the risk of distraction during workflow.

     In regard to barriers to reporting MAEs, according to this study, fear was

identified as the primary barrier to medication error reporting. It was found that nurses

fear being blamed if something happens to the patient as a result of the medication error

and that the patient or family might develop a negative attitude toward the nurse. In

addition, in general, nurses fear adverse consequences from reporting medication errors.

This finding is supported in numerous other studies (Chiang & Pepper, 2006; Gladstone,

1995; Hajibabaee et al., 2014; Mayo & Duncan, 2004; Osborne et al., 1999; Sarvadikar et

al., 2010; Unver et al., 2012; Wakefield et al., 1996; Wakefield et al., 1999). These

findings support systemic change. As indicated in the literature, improving patient safety

via learning from reported medication errors is a well-known and promising strategy.

Modifying personal attitudes toward MAE reporting is also strongly suggested. It is

important the healthcare organizations nurture a culture that is less focused on laying

blame in order to encourage communication and error reporting. It seems that

establishing a comprehensive reporting system free of fear and retribution can make a

significant difference in encouraging nurses and other health care providers to report the

potential errors and help the system to learn from those errors (Hajibabaee et al., 2014).

Through the establishment of a fair and effective reporting system for medication errors,

organizations are provided with an opportunity to improve the quality of patient

outcomes.

In the current study, the primary reporting process barrier identified was 'nurses

may not think the error is important enough to be reported'. Error reporting shows

nurses' willingness to take responsibility for their actions, to solve or confront errors of

judgment, and to consider the root cause of errors (Lederman et al., 2013). The reporting

of MAEs takes time, insight, and self-confidence. Nurses and nursing leaders need to be

clear as to what constitutes a medication error and what specific actions should be taken

in the event of a MAE (Gladstone, 1995). Organizational leadership have important roles

in this process by educating nurses on the importance of reporting medication errors and

offering positive feedback for safely administered medications. In addition, following

the fear-related reporting barriers, administrative barriers were the second chosen

subscale perceived barriers to MAE reporting. These barriers indicated administrator's

management and attitudes toward MAEs. The primary administrative barriers chosen

were not receiving positive feedback for passing medications correctly and focus on

individual rather than system factors to MAEs. Healthcare systems without adequate

feedback on reporting will not encourage nurses to report MAEs or provide satisfaction

for the nurse reporting. Nursing leaders can facilitate learning from MAEs by monitoring nurses' medication administration behaviors, exhibiting "management by walking around", asking questions, and providing on-the spot feedback (Drach-Zahavy et al., 2014). In doing such the leaders send a clear message that medication safety is an important, high-priority strategic goal in the organization (Zohar & Tenne-Gazit, 2008).

Recommendations

In this study it was identified that nurses are apt to not report MAEs because of varied barriers. Comparisons of barriers and actual reporting of errors warrants further investigation. This comparison of barriers and frequency of medication error reporting can possibly be better obtained by formulating the survey instrument in a manner to avoid response bias. In order to receive greater response to the demographic questionnaire, the researcher suggests using a demographic instrument that does not ask the participant to specify the type of nursing unit worked. In addition, whether the perceived MAE reporting rates differ from the actual rates of medication errors should be further examined. Further clarification of nurses' attitudes and design of positive methods for MAE reporting are important considerations for future research and nursing practice. Healthcare leaders can make a major impact on the development of an organizational safety culture that is free from blame and punishment by promoting a vision and strategy for quality and safety. This safety culture can be accomplished through fostering the nursing team's motivation to implement improvement programs at the organizational and personal level (Kagan & Barnoy, 2013). Additional suggestions included keeping up with medication education; preparing, and administering medication without distraction; and

improving communication among healthcare providers. All of these issues need to be addressed in order to reduce medication errors and improve patient safety.

Conclusion

In this study, the researcher examined nurses' perceptions for reasons why medication errors occur, reasons why medication administration errors are not reported, and percentage of each type of error reported. It was identified that the primary contributory causes for medication errors occurrence are as follows: manufacturing related (i.e., medications have similar names, have similar packing, and medications look alike); physician related (i.e., physicians' medication orders are not clear, physician orders are not legible); pharmacy related (i.e., pharmacy does not label the medication correctly); and nurse related (i.e., nurses are interrupted while administering medications to perform other duties). In the current study, the primary perceived barriers to reporting MAEs were fear related (i.e., fear of being blamed if something happens as a result of the medication error, the patient or family might develop a negative attitude toward the nurse, or may sue the nurse if the medication error is reported, nurses fear adverse consequences from reporting medication errors). The primary administrative barrier nurses perceive is not receiving positive feedback for passing medications correctly. The primary reporting process barrier perceived is that nurses may not think that the error is important enough to be reported. Also identified in this study, nurses perceive that medication errors are underreported; although no correlation was found to exist between perceived reporting barriers and nurses' perceptions of the frequency of medication error reporting.

In conclusion, accurate reporting of medication administration errors is essential for identifying system faults that can contribute to the likelihood of future errors. Therefore, error reporting can improve medication safety by addressing system failures and helps to prevent future errors by providing an opportunity for nurse education and training. The results of this study suggest that healthcare organizations review their policies on error reporting to ensure they actively encourage nurses to report medication errors and to support a retribution-free culture within the organization.

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Appendix A: Participant Informed Consent

Dear Registered Nurse Colleagues,

You are being asked to take part in a research study of nurses' perceptions regarding the reporting of medication administration errors. This study is being conducted by one of your SRHS nursing colleagues as part of the fulfillment of graduate nursing studies at Gardner-Webb University. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

What the study is about: The purpose of this study is to explore the relationship between the reporting of medication administration errors and nurse fear of retribution. In order to participate you must be a registered nurse providing either direct or indirect nursing care to patients admitted to Spartanburg Regional Healthcare System inpatient facilities (SMC, SHRC and PMC).

What you will be asked to do: If you agree to be in this study, you will be asked to complete an electronic questionnaire about your views regarding the reporting of medication administration errors. Completion of the survey instrument will take approximately 5-10 minutes.

Definition terms: In the survey, you will notice some use of verbiage that is somewhat outdated. For example: "Kardex" refers to MAR or an eMAR and "ward" is more commonly referred to as "unit".

Risks: Most participants experience no risks. Some participants might experience mild anxiety related to possible feelings of guilt or embarrassment. At any time during the study, if you experience any feelings of psychological discomfort while answering the survey questions, you may decline to participate and may withdraw by exiting the survey before the survey completion. There will not be any administrative or collegial access to your question responses.

Benefits: There are no direct benefits to you for participating in this survey. The indirect benefits to you for your participation in this survey are reporting the de-identified, aggregated results which will lead to improvements in work procedures that reduce the likelihood of error in the future and therefore reduce the distress for nurses and increase effectiveness. The nursing profession is very challenging; the researchers' aim of this study is to contribute to the field of nursing and improve patient outcomes.

Your answers will be confidential. The records of this study will be kept private. Participants' individual responses will not be identifiable. Responses of each question will be aggregated into collective results by electronic aggregation prior to analysis of the data. The researchers will not have access to any information identifying who participated in the survey. Supervisors and colleagues will not have access to any specific, identifiable responses.

Taking part is voluntary: Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide to take part, you are free to withdraw at any time.

If you have questions: The researchers conducting this study are Emily Hanna, BSN, RN and Candice Rome, DNP, RN. If you have any questions, you may contact Emily Hanna at 864-621-3548 or ehanna@gardner-webb.edu. Dr. Rome may be contacted at 704-406-4365 or crome@gardner-webb.edu.

Instructions to complete survey: Please see the attached for the survey instructions.

Consent: Your completion of the survey serves as your implied consent for participation.

Appendix B: Permission to use MAE Reporting Survey

Appendix C: Demographic Instrument

To assist in data analysis and interpretation of the survey results, we would appreciate if you would provide us with the following information-Please indicate what best represents you and your unit.

67. Does your unit use the unit-dose system?

      1. Yes   2. No

68. What model of nursing practice is used?

      1. Team   2. Primary   3. Other, please specify_____

69. What is your nursing education?

      1. Diploma   2. ADN   3. BSN   4. MSN

70. What other non-nursing degrees, if any, do you have?

      Please specify_____

71. What is your current position on your unit?

      1. Staff nurse   2. Charge nurse/other administrative   3. Other, please specify_____

72. How often do you administer non-IV medications?

      1. Never 2. Rarely 3. Occasionally   4. Frequently

73. How often do you administer IV medications?

      1. Never 2. Rarely   3. Occasionally   4. Frequently

74. Are you employed full-time or part-time in your current position in this institution?

      1. Full-time   2. Part-time   3. PRN

75. What is the average number of times you float between units per month?

      0   1   2   3   4   5   6   7   8   9   10+

76. How many units do you float between each year?

      1   2   3   4   5   Not applicable, I do not float between units

77. Type of nursing unit to which your responses apply (CHOOSE ONLY ONE RESPONSE)

1. Medical-Surgical	5. CCU	9. PICU
2. Obstetrics	6. MICU	10. Psychiatry
3. Pediatrics	7. SICU	11. Float pool nurse
4. LTC/SNF	8. ICU	12. Other, please specify_____

78. Facility 1. _____   2._____   3._____

79. Age group1. 20-29 2. 30-39 3. 40-49 4. 50-65 5. 65+