A Study to Reduce Medication Administration Errors Using Watson’s Caring Theory

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Abstract

In a study to decrease medication administration errors (MAEs), nurses wore brightly colored sashes as a symbol that they were performing the important task of giving medications and were not to be interrupted. Situated within Watson’s (2005a) caritas theory, the study gave nurses the opportunity to “center” themselves to enhance focus and concentration on medication administration. While nurses appreciated the opportunity to concentrate on administering medications without interruptions by other staff or phone calls, they worried that patient care coordination, for which they were responsible, was suffering. Interventions focused on enhancing safety of a single task may be incongruent with total patient-centered care.

Key Words: Medication administration errors, patient safety, Watson’s caritas theory, nursing care, work interruptions, nursing distractions, medical-surgical nursing

Statement of the Problem

A primary responsibility of nursing is the administration of medications, a role which commonly involves distraction and interruption. Multitasking is said to be a major contributing factor to human errors (Hallinan, 2009), and it is well-documented that distractions and interruptions associated with multitasking lead to medication administration errors (MAEs). Given the high cost of MAEs in harm, potential harm, injury, and even death to patients, and the documented distress to nurses (Rassin, Kanti, & Silner, 2005; Treiber & Jones, 2010), as well as patients and families, interventions with potential to decrease rates of MAEs by nurses are needed.

During a presentation at Saint Joseph’s Hospital in Atlanta, Georgia on March 17, 2009, Dr. Jean Watson recommended several simple caring practices nurses could use throughout the work day to help them “stop and reflect before going forward.” The practices seemed relevant to efforts to reduce nursing MAEs. The first practice was for nurses to take a moment to “center” themselves before administering medications. The second practice included efforts to “protect” nurses from distractions and interruptions during medication administration, such as wearing a brightly colored sash as a symbol they were in the medication administration process and were not to be interrupted. A research study was undertaken to test the effectiveness of strategies to decrease MAEs using Watson’s (2005a) Caritas Model. This manuscript is the report of that intervention study.

Research Purpose

The purpose of the study was to implement a nursing unit-based intervention to decrease MAEs by nurses. The intervention involved several strategies recommended by Watson to decrease nurse distraction and interruption, and to increase focus and concentration during the medication administration process. Specific strategies included nurses wearing brightly colored sashes during the administration of scheduled medications as a sign they were not to be distracted or interrupted. Another strategy involved nurses “centering” themselves prior to the medication administration process and reviewing the seven “rights” of medication administration (right patient, right drug, right dose, right time, right route, right reason, right documentation). In addition, all unit personnel would agree to work as a team to implement the intervention, which would be facilitated by educating unit and hospital staff, as well as patients and families, to the intervention and its purposes.

The study aimed to answer the following primary research question: Is there a reduction in MAEs with the proposed intervention? Other research questions were: (a) To what extent do severe and non-severe MAEs occur during the intervention? (b) To what extent can nursing distractions and interruptions be decreased during the medication administration process? (c) To what extent are nurses better able to focus and concentrate on medication administration during the implementation of the intervention? (d) To what extent are other nurses and unit personnel willing to provide nurses administering medications a distraction-free, interruption-free zone? (e) What benefits do nurses and other unit staff experience with the implementation of the intervention? (f) What negatives, if any, do nurses and other
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Background and Literature Review

The Institute of Medicine (IOM, 2000) reported between 44,000 and 98,000 deaths each year from preventable medical errors, making medical errors the fifth leading cause of death in the United States. Although “medical errors” include more than MAEs, MAEs have been found to be the most frequently identified hospital error (Cook, Hoas, Guttmannova, & Joyner, 2004; IOM, 2007).

Determining exact numbers of MAEs has proven difficult. It is widely accepted that reported numbers of MAEs are greatly underestimated (Mayo & Duncan 2004; Ulamino, O’Leary-Kelly, & Connolly, 2007) with some estimates that only 5% or less of MAEs are reported (Cohen, Robinson, & Mandrack, 2003). Much previous research on MAEs has made no distinction between severe and non-severe errors. Severe MAEs, sentinel events according to Joint Commission (JCAHO), are those that lead to death or serious physical or psychological injury. Due to their serious consequences and obvious nature, reported cases of severe MAEs are believed to be close to actual numbers. Non-severe MAEs, however, are less obvious and believed to be underreported because of nurses’ beliefs that there is less necessity to report those (Chang & Mark, 2009).

Costs associated with MAEs are high in terms of human morbidity and mortality, as well as healthcare dollars, estimated to be in the billions of dollars annually (IOM, 2007). Many organizations are involved in efforts to improve patient safety, including reduced medication errors. Recommendations for improving medication safety range from the esoteric, “Remove barriers to and facilitate the involvement of patient surrogates in checking the administration and monitoring the effects of medications wherever and whenever they are administered” (IOM, 2007, p. 225), to affirmation of medication administration processes nurses learn in the first year of nursing education, like performing the “rights” of medication administration, having knowledge about medications prior to administering, and monitoring patients for adverse medication effects (National Coordinating Council for Medication Error Reporting and Prevention, 2001).

Additionally, The Joint Commission (n.d.) has mandated practical and procedural safety interventions, such as, increasing the number and solicitation of patient identifiers, instituting a procedure for reading back and confirming verbal orders, improving the labeling and packaging of medications, reducing stocks of multi-concentration medications, minimizing look alike/sound alike medications, increasing reporting mandates, and instituting patient reconciliation efforts. Many interventions focus on the development of new technologies (Bates, 2007; Skiba, 2006), such as computerized patient charting, computerized patient record system (CPRS)(Smart Card), electronic medication administration records (eMAR), computerized provider order entry (CPOE), bar-coded medication administration (BCMA), intravenous infusion safety systems (smart pumps), automated dispensing cabinets (ADCs), and computerized adverse drug event (ADE) monitoring. While such technologies help nurses with medication administration, they also take time to learn and are often time consuming to use causing nurses to find ways to bypass the very safety features the technology was meant to address (Koppel, Wetterneck, Telles, & Karsh, 2008).

Despite intense scrutiny on the matter, MAEs continue to occur in large numbers (IOM, 2007). In part, because many of the recommendations and interventions to reduce MAEs fail to account for the realities of the fast-paced nursing work environment with its complex, high-stakes patient care situations. Nurses administer hundreds of medications daily via multiple routes to numerous patients with a variety of disease processes. While doing so nurses are subject to many distractions and interruptions, which can interfere with concentration on the critically important task of medication administration. Westbrook, Woods, Rob, Duns-muir, and Day (2010) found that each interruption experienced by a nurse during medication administration increased procedural failures (failures to read a medication label, check patient identification, check blood glucose before insulin administration, or blood pressure/pulse before antihypertensives or beta blockers) by 12.1% and clinical errors (wrong drug, dose, route, formulation, or time) by 12.7%. They also found that less than 20% of medication administrations were delivered without procedural failures or clinical errors.

By addressing the issue of distraction, a simple, nurse-led initiative has been shown to reduce MAEs (Agency for Healthcare Research and Quality [AHRQ], 2009; Federwisch, 2008; Pape, 2003). The initiative was aimed at creating a distraction-free, interruption-free zone for the nurse to administer medications by wearing a brightly colored vest or sash as a sign to others that the nurse was performing the important and complex task of medication administration and needed to focus complete attention on the task to ensure accuracy. Nurses were not to be interrupted during the medication administration process, except for essential issues related to the medication administration process at hand. Donning the vest/sash was also a symbol to the nurse that she was beginning an important task and should stay focused until the task was complete.

This low-tech initiative led to significant reductions in MAEs at a number of hospitals. Kaiser South San Francisco Medical Center reported a 60% reduction in medication errors in January 2008 compared to January 2007 (AHRQ, 2009). Another Kaiser facility reported a 20% reduction in medication errors after using the intervention for 30 days (Federwisch, 2008). The
success of early pilot tests of the intervention resulted in adoption of the “MedRite” process by all Kaiser Hospitals in the San Francisco region and, due to strong improvement rates, was later adopted by all Kaiser Hospitals in Northern California, Oregon, and Hawaii. Additional benefits of the protocol included increased on-time medication delivery and substantial reduction in nursing time to administer medications (AHRQ, 2009; Federwisch, 2008). While similar findings resulted from interventions designed to eliminate or minimize non-emergency interruptions of nurses during medication administration (Nguyen, Connolly, & Wong, 2010), none of the studies to reduce nursing MAEs was guided by a specific nursing theory or theoretical framework.

Theoretical Framework

Watson’s (2005a) caring theory, specifically her Caritas Model, framed this intervention. For Watson, the practice of caring is central to nursing and its unifying focus. Watson originally designated her human caring interventions carative factors and later translated them into the caritas processes (Watson, 2005a). Watson’s caritas processes restore love, compassion, and heart-centeredness to nursing practice for more meaningful and purposive human service. Caritas has been adopted by a number of hospitals throughout the United States to facilitate efforts to create caring systems that lead to Magnet status (Watson, 2005b). Caritas processes (Watson, 2005a) are meant to care for and benefit patients and families, as well as nurses and other staff. The focus of caritas for nurses is finding ways, while practicing nursing, to stop and reflect before moving forward. Of Watson’s 10 caritas processes, the following three were congruent with the medication administration intervention: (a) practice loving-kindness and equanimity within the context of a caring consciousness, (b) being authentically present, and (c) developing and sustaining a helping trusting, authentic caring relationship. For Watson, practicing loving-kindness and equanimity means practicing loving-kindness toward self, patients and families, fellow nurses, and other hospital staff. Practicing equanimity is to perform with calmness under stress. Watson challenged nurses to be more fully and authentically present to patients and families, as well as the task at hand, rather than allowing themselves to be distracted by other factors. Given that medication administration is part of the helping trusting care nurses give patients, knowledge and practices to enhance the safe and accurate administration of medications are required.

As part of caritas and self-care, Watson (personal communication, March 17, 2010) recommended nurses take time to “center” themselves before beginning activities, such as administering medications, and before each new patient and family interaction. There are many simple ways nurses can center themselves throughout the day, such as pausing to take a few slow deep breaths or concentrating briefly on one’s breathing. Watson also recommended the “Zen” of hand washing. Given that nurses must wash their hands prior to administration of medications or contact with patients, Watson suggested nurses use hand washing as a time to center themselves. Centering clears the mind of the previous patient care situation or activity in order to move into the next patient care situation or activity with authentic presence. Centering also fosters nursing practice conducted with equanimity, calmness under stress.

The strategies used in this study reflected Watson’s caritas process. Wearing the sash was a sign to all that the nurse was giving medications and was not to be interrupted, implying that others should delay contact with the nurse or intervene for the nurse until the medication administration process was complete. The sash symbolized a zone of protection around the nurse to decrease distractions and increase focus and concentration on the medication administration process. While some nursing functions and communications can be postponed for a time, many nursing practice functions and communications cannot be suspended during medication administration. Delaying interruption and/or intervening for nurses during medication administration reflected a team commitment to practice loving-kindness toward nurses giving medications, as well as patients and families. Such practices require “buy in” from all nursing unit personnel, as well as understanding by other hospital personnel and physicians. In order to fully participate in the process, nurses administering medications had to feel confident that others would honor their focus on medication administration and intervene for them in essential nursing functions that might arise. Otherwise participation in the medication administration intervention would become an added distraction for the nurse.

The final caritas strategy concerned systematic review and ongoing incorporation of principles related to medication administration, such as verifying medication orders, not engaging in conversation, looking at items being read, checking the seven “rights” of medication administration, verifying patient allergies, taking the MAR to the patient’s bedside, taking medications in unit-dose packets to the bedside, verifying the name on the patient arm band, as well as asking the patient to state his/her name, and correctly documenting medications given. These practices affirm the helping, trusting care patients and families require of nurses. Conducting the intervention within Watson’s Caritas Model had the potential to enhance the practice of nursing for nurses, patients, and families, as well as other hospital staff and the health system. Centering and authentic presencing can increase nursing focus and concentration on all nursing practices. Environments where nurses are able to give more competent and caring nursing care have been shown to increase job satisfaction and nurse retention, essential elements in times of critical nursing shortage. With Watson’s framework, nurses work in concert with one another to achieve a common goal, thereby creating a spirit of teamwork and collaboration that benefits all.
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Significance of the Study
The study had significance for the health system, the nurses who participated, the patients and families for whom they provide care, the profession of nursing, and, ultimately, the public. MAEs are responsible for tens of thousands of patient deaths each year exacting high costs in terms of human mortality and morbidity, as well as healthcare dollars. If implementation of this simple, inexpensive, nurse-led intervention to decrease nursing distraction and interruption and increase focus and concentration during medication administration could demonstrate a decrease of even one severe MAE, the effort would be worthwhile.

A focus on medication administration safety also had the potential to improve error reporting behavior of nurses. Given that MAEs are vastly underreported, unreported errors are, therefore, not investigated and root-cause analysis is not done. Such factors create a void in knowledge of why, how, and how often medication errors occur and stymie efforts to resolve the issue. Greater knowledge of issues surrounding MAEs can facilitate root-cause analyses and efforts to eliminate medication errors.

While it is reported that nurses are seen by the public as the most trusted healthcare professional, the public also knows that MAEs are regularly committed by nurses and can lead to physical and mental harm, and possibly death. This intervention had the potential to increase public trust of nurses and give patients and families more confidence in the safety and accuracy of the nursing care they receive in hospitals.

Design
The design for the study was nursing intervention research (Polit & Beck, 2012) using both quantitative and qualitative data for intervention evaluation. Quantitative data were collected regarding the number of severe and non-severe MAEs made during the intervention implementation period and compared to counts of these errors made prior to the intervention. Qualitative data were collected to evaluate nurses’ and other hospital staff’s perceptions of the effectiveness of the medication administration intervention. Qualitative data were gathered through open-ended, semi-structured focus groups conducted with unit and hospital staff directly or indirectly involved with the intervention.

Intervention Development
Phase one of intervention research is intervention development (Polit & Beck, 2012). In this phase the concept for the study was presented to the director of the Center for Nursing Excellence within a five-hospital not-for-profit health system in the Southeastern United States. The director shared the study idea with the system-wide nurse executive and both approved of the study. The director facilitated meetings between the researchers and nursing leaders in two hospitals to find a suitable hospital and unit for implementation of the intervention. The health system was introducing a barcode scanning process for nursing medication administration, Admin Rx, one hospital at a time. In order to decrease interaction between two medication error reduction processes, it was decided that the hospital that had been using the medication scanning process for over 1 year was the best facility in which to implement the intervention. The hospital system’s clinical nurse specialist contacted the nurse manager of the largest nursing unit, who volunteered her unit for implementation of the intervention.

Meetings were held between the researchers, unit managers, hospital nursing executive, and nursing unit staff to plan implementation of the intervention. The only significant barrier anticipated was Spectra-Link phones, which nurses in the system were required to carry at all times to maintain communication with physicians, unit personnel, other hospital departments, as well as patients and families. Since a phone call during medication administration would violate the “no interruption” zone, strategies were planned to ensure a nurse’s phone would be answered while she administered medications. Strategies included phones of nurses giving medications would be left at the nursing station to be answered by the unit secretary, nurse manager, or other nurses as time permitted. Each nurse was assigned a nurse buddy to answer her phone when she was administering medications and all nursing staff would work as a team to cover the patient care needs of the unit during scheduled medication administration times. It was determined that the intervention would be implemented for at least 6 weeks. The study was approved by the system-wide nursing research committee and the university Institutional Review Board where the three researchers were employed.

Educational materials were prepared by the researchers and shared with nurse managers prior to study implementation. Materials included a lesson plan outlining the intervention and rationales, an overview of Watson’s Caritas Model and related strategies to guide the study, as well as a review of the “rights” of medication administration. The process for medication administration outlined in the educational materials involved the following steps: enter medication room, put on the sash, review the MAR, verify correct time, check for patient allergies, pull medications, verify right does, verify right route, verify right reason, go to patient’s room, turn down TV/radio, turn on lights, gel, or wash hands, remove sash, exit patient room. A 4x6-inch laminated card was also prepared for each nurse on the unit. One side of the card had the medication administration checklist, while the other side had a script to explain the study to patients and family members. It was anticipated nurses would
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carry the card with them throughout the study.

The assistant unit nurse manager offered to orient all nursing staff and allied unit personnel to the study using the prepared lesson plan. Unit managers also agreed to advertise and facilitate the study. Since the health system used a “levels” program for nursing advancement, nursing staff offered to facilitate orientation of the study and its theoretical framework throughout the unit, make signs advertising the study for the unit, plan the “nursing buddy system,”” as well as educate patients and families about the study. Nurse managers shared study purposes and procedures in hospital department-head meetings and emails to all hospital departments. For several days prior to implementation of the study the assistant nurse manager wore one of the “hot yellow” medication administration sashes throughout the day to advertise the study.

Setting

The hospital where the study was conducted had 98 beds and the selected medical nursing unit had 38 beds. The unit employed 26 registered nurses (RNs) and eight licensed practical nurses (LPNs) who administered medications. Several nurses had medical-surgical nursing and advanced life support certifications. Nurses had between 1 and 30 years of experience and two RNs were new graduates. There were 12 certified nursing assistants, five secretaries, and six monitor technicians employed on the unit. The patient population on the unit consisted primarily of patients diagnosed with pneumonia, chest pain, renal failure, altered mental status, and dehydration.

Intervention Testing

When all nursing unit personnel were oriented to the intervention study and its theoretical framework, and all hospital departments were notified of the study and its implications for their interactions with nursing staff, the testing phase of the intervention (Polit & Beck, 2012) began on a Sunday at 7:00AM and continued for 7 weeks (April 25 to June 13, 2010). System-wide databases were in place to gather and compile data related to number and types of MAEs. These data were tracked according to hospital and nursing unit.

Intervention Evaluation

Following completion of the study, critique and evaluation of the intervention began. Medication error reports were obtained from the hospital medication safety analyst for the 7-week intervention period, the 7-week period preceding the intervention, and the same 7-week period 1 year prior to the intervention (Table 1). The nursing manager also scheduled three focus group sessions to evaluate the intervention and invited all unit and hospital staff impacted by the study to attend. Focus groups were scheduled at times convenient for staff working all shifts, including weekends. Two researchers attended and led each focus group, which were attended by six, five, and five participants, respectively. In addition to RNs (n = 10) and LPNs (n = 3) who participated in the study, focus groups were attended by a respiratory therapist, a social worker, and a pharmacy technician. The assistant nurse manager who had assumed responsibility for orientation and oversight of the study attended two focus groups.

Focus groups began with introductions and restatement of the purpose of the focus group. Each person signed an attendance sheet and consent form. A researcher-developed, semi-structured interview guide was used to gather evaluative data about the intervention. Data were collected using an Edirol recording machine and participants were reminded to refer to each other by first names only. Focus groups began with a researcher asking participants for their overall impressions of the intervention and its effectiveness. Researchers took turns asking questions and posing probes. Data gathered from nurse participants reached saturation in the three focus groups. Slight variations in each focus group were reflective of non-nurse participants. Focus group recordings were transcribed verbatim by a graduate research assistant.

Data Analysis

Medication error reports were analyzed by simple comparisons and examination of the categories of medication errors reported (National Coordinating Council for Medication Error Reporting and Prevention, 2001). Focus group data were analyzed using content and thematic analysis (Lincoln & Guba, 1985), along with the process of writing (van Manen, 1990). Focus group transcripts were shared with each of the researchers, who read them individually several times for significance, themes, and patterns. The researchers met to discuss early impressions of study findings. Each researcher began the process of writing results and submitted them to the first author who coordinated the writing/analysis process. As writing and analysis of focus group data continued, answers to the research questions were revealed. Written analyses were shared among the researchers and consensus was established. Trustworthiness of the qualitative analysis process was affirmed through data saturation, researcher inter-rater reliability, maintenance of an audit trail (Lincoln & Guba, 1985), and reflective writing and rewriting (van Manen, 1990). What follows are findings from analysis of focus group data and medication error reports. Quotes from participants are used to support findings.

Central Research Question

Is there a reduction in MAEs with the proposed intervention?

The intervention did not produce a reduction in MAEs. The same numbers of MAEs (n = 4) were reported during the intervention period as had been reported in the 7 weeks prior to the intervention and the same 7-week period a year before the interven-
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The difference was that during the intervention, all MAEs were wrong dosages and during the other 7-week periods there were errors in medication omissions and wrong patients. It was positive, however, that no wrong patient errors occurred during the intervention. Given that system-wide medication error reports are compiled by self-report data, it was anticipated that during the intervention period a focus on MAEs may have heightened the sensitivity of the nursing staff to medication administration and, thus, error reporting, thereby potentially increasing the number of reported MAEs during the intervention. This was not the case during the intervention.

A factor that may have contributed to a lack of reduction in MAEs was the length of the study. It may be that 7 weeks is not long enough to affect a decrease in MAEs with this intervention.

Another factor that may have contributed to the lack of reduction in MAEs during the intervention was a lack of ongoing reminders of study procedures throughout the study. Focus group participants reported within the 7 weeks of the study, nursing staff had become so accustomed to seeing and wearing the sash that it may not have served as a symbol for increased focus and concentration during medication administration. Ongoing reminders may have prevented this habituation. It may also have been that there was too little "buy-in" by the nursing staff to the conduct of the study. While nursing staff who attended planning meetings were enthusiastic about initiating the study, their enthusiasm may not have been shared by all nursing staff who participated.

To what extent do severe and non-severe MAEs occur during the intervention?

Four non-severe MAEs occurred during the intervention. As noted in Table 1, three of the wrong dose errors were not harmful to the patient; one was more serious and required careful patient monitoring.

To what extent were nursing distractions and interruptions decreased during the medication administration process?

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To what extent were nursing distractions and interruptions decreased during the medication administration process?

Nurses said distractions and interruptions were clearly decreased during the medication administration process for the study period. Wearing the sash as a sign to others and leaving their phones at the nurses' station meant that nurses were not interrupted to the extent they might otherwise have been during medication administration. One nurse said, "It was really nice not to be bothered," a theme found in all focus groups. Overall, nurses seemed to indicate that having increased focus and less interruption during medication administration was a luxury for them, rather than an essential safe nursing care requirement.

Table 1. Numbers and Types of Medication Administration Errors

<table>
<thead>
<tr>
<th>Dates</th>
<th>Total Number of Errors</th>
<th>Error Category &amp; General Description of Errors</th>
</tr>
</thead>
</table>
| 04/26/2009 to 06/14/2009 7-week period, 1 year prior to intervention | 4 | 1. Category C - Wrong Dose  
2. Category C - Wrong Patient  
3. Category C - Omission  
4. Category C - Omission |
| 03/07/2010 to 04/24/2010 7-week period, preceding the intervention | 4 | 1. Category C - Wrong Patient  
2. Category C - Omission  
3. Category C - Omission  
4. Category C - Omission |
| 04/25/2010 to 06/13/2010 7-week period of the intervention | 4 | 1. Category C - Wrong Dose  
2. Category C - Wrong Dose  
3. Category C - Wrong Dose  
4. Category D - Wrong Dose |
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What extent were nurses better able to focus and concentrate on medication administration during the implementation of the intervention?

Nurses said the intervention allowed better focus and concentration on medication administration, which should have led to a decrease in MAEs. Not having to carry their phones during medication administration and nurses knew they would not be interrupted by phone calls that required attention elsewhere. One nurse found that having to explain the sash and the intervention to patients, families, and physicians was distracting, and "somewhat defeated the purpose." Another nurse said that while there was a "little break" from distractions in the medication room when gathering medications, there was still a need to maintain focus when scanning medications at the bedside because of interactions with patients and families. A better orientation of patients and families to the study intervention and rationale may have prevented this distraction at the bedside.

To what extent were other nurses and unit personnel willing to provide nurses administering medications a distraction-free, interruption-free zone?

Focus group data regarding this question were mixed. Nurses reported that at times the buddy system worked with other nurses and unit personnel demonstrating willingness to answer phones and provide nursing care for nurses administering medications. At other times the buddy system did not work. Although some acknowledged, "It was difficult to rely on the buddy system," all were quick to say patient care never suffered. Because nurses administering medications did not always share their activities with others or tell the secretary they were leaving their phone at the nurses' station to administer medications, nurses in all focus groups indicated need for "more team work" and "better communication." Nurses clearly wanted persons they could trust to cover for them when they were focused on giving medications and away from the nurses' station and their phones; otherwise, as predicted, the intervention became an added stressor for them. Nurses also acknowledged that the large size of the unit often made it difficult for staff to have the necessary information to cover for other nurses, even though there was willingness to do so.

What benefits did nurses and other unit staff experience with the implementation of the intervention?

Nurses said they liked the idea of the intervention, "...it was really nice not being interrupted" and being able to concentrate on medication administration. They said giving medications was quicker and more efficient, and they liked having some "me-time." Nurses said they benefited from not carrying their phones, as well as decreased talk and distraction in the medication room. They reported that patients and families were appreciative of "what the study was doing and why" and said the study was a benefit to "customer service," as well as patient safety. In addition, nurses reported that other departments "understood and were supportive of the idea and significance of the study."

What negatives, if any, did nurses and other unit staff experience with the implementation of the intervention?

While nurses liked not carrying their phones, separation from their phones was negative in many ways. Nurses feared that someone important was trying to get in touch with them or that they had information about their patients that needed to be shared with physicians or other departments. While the buddy system was intended to operate while nurses wore the sash and administered medications uninterrupted, many nurses feared their phone was not being answered or that they had critical information that could facilitate patient care coordination. While nurses recognized that many of the calls they receive are somewhat unimportant or redundant, they also recognized that many calls convey information vital to good patient care. Nurses felt responsible for always being available to physicians, patients, families, and other hospital departments and there was evidence that other hospital personnel shared this notion of constant availability of nurses. A social worker who coordinated patient discharges said her work was delayed when she saw that a nurse with whom she needed to speak had on the "no interruption" sash and she had to wait to discuss a discharge until the nurse removed the sash. Nurses said persons in other departments complained they could not get their questions answered or their work done when they were unable to contact nurses because of the "no interruption" rule. Nurses expressed feeling guilty that unit secretaries were asked most of the questions meant for them, which increased the secretaries' workload and delayed their ability to get their own work done. While nurses reported that the "no interruption" aspect of the study was "a great relief" for them, it put a "heavy burden on other staff."

Some nurses complained that a few nurses abused the "no interruption" aspect of the study and kept sashes on longer than necessary, which imposed on other staff. Nurses also found that the intervention interfered with what the assistant nurse manager called, "smart and lean" practice, meaning that when a nurse enters a patient's room she generally intends to do all nursing care activities related to that patient, before moving on to another patient or activity. For example, a nurse might conduct a physical assessment, administer medications, change a dressing, chart on the patient, and take care of other patient care needs for one patient prior to moving on to another. This method of practice contradicts the notion of a nurse putting on a sash and giving all scheduled medications to all assigned patients one after another. Nurses reported that
it was problematic to wear the medication administration sash for long periods when they were doing many more nursing activities for the patient than administering medicines. They noted that nursing practice "involves much more than giving medications" and many times "giving meds is not the priority."

Another negative expressed by nurses was the issue of the common medication administration times, which resulted in virtually all nurses giving medications at the same time, leaving no one but the nurse manager or secretary to answer Spectra-Link phones. Nurses also reported the problem of medications, such as antibiotics, which are given at "off" times depending on patient admission times. Combining "off" medication administration times with regularly scheduled medication administration times meant that some nurses were giving medications "all the time," which required wearing a sash "all the time," something they saw as unrealistic.

To what extent did nurses perceive a difference in error-reporting behavior during the intervention?

Nurses did not appear to perceive a difference in error-reporting behavior during the intervention. No error-reporting behavior was addressed by nurses in focus groups, although, as noted previously, it was anticipated that a study focused on decreasing MAEs might cause a spike in self-reports of medication errors. Although there were different types of errors reported, the same number of nursing MAE self-reports occurred in the three 7-week time periods evaluated (Table 1).

To what extent are nurses mindful of the caring framework during the intervention?

Researchers were attuned to any mention of Watson's caritas framework during focus groups. Given that Watson's caring theory had been adopted by the health system to guide nursing practice, there was little discussion about how the theory guided their nursing practice in general or how it may have guided them during the MAE study. Without naming it directly, however, nurses addressed many aspects of Watson's theory related to the intervention. Nurses clearly appreciated Watson's notion of focus and concentration on the task at hand. They liked knowing that by wearing the sash they could prepare and administer medications without being interrupted by phone calls or by other personnel. One nurse referred positively to the process of not being interrupted as "me time." Knowing they could give medications with increased focus and concentration and without interruption allowed nurses to practice Watson's notion of loving-kindness and equanimity with patients and families. It also allowed them to be authentically present with the patient and the task at hand, which according to Watson fosters development and sustenance of helping trusting, authentic caring relationships.

An aspect of Watson's theory not fully adopted by nurses during the intervention was the notion of care for fellow nurses. Some nurses were clear that the buddy system, whereby other nurses would cover for nurses who were administering medications, did not work well. While some nurses said there did not appear to be a willingness to cover for other nurses on the part of some nurses, others said the size of the unit and the large numbers of patients did not allow for good coverage by other nurses even though there was willingness to do so. In planning the study, researchers and nursing managers realized that without "buy-in" from all nursing staff to cover for one another, the supporting framework for the study would be lost and this appeared to be the case from time to time. Nurses clearly expressed care for other hospital personnel and unit staff who were inconvenienced by not being able to contact or interact with them. Nurses "care" that they are the heart of the patient care coordination system and are distressed when the work of other personnel or staff is delayed or increased due to a lack of contact with nurses. Sadly, nurses in this study seemed to care more for non-nurse hospital and unit personnel than they did for their fellow nurses. While concern for others is laudable, nurses need to extend the principles of loving-kindness to themselves and other nurses.

Conclusions

Findings from this study indicate that donning a symbolic "no interruption" sash to give scheduled medications may not be a best practice, especially in light of information that individuals become habituated to symbols and reminders fairly quickly. While not being interrupted was beneficial for nurses, what might be of more benefit than donning a sash would be an ongoing symbolic reminder in the hearts and minds of all nurses to inspire them to increase their focus and concentration during medication administration and other profoundly critical nursing care practices. Such focus and concentration by nurses will also require recognition on the part of other personnel who interact with nurses to show respect for nurses' time and efforts in certain tasks. Ultimately, nurses must give themselves permission to say to others, both literally and figuratively, "I'm in the process of a profoundly important process and cannot be disturbed now."

Another aspect of this study that bears examination is the issue of the Spectra-Link telephones nurses in the healthcare system carry at all times. What was instituted as a way to maintain contact with staff nurses has become somewhat oppressive to nursing practice and individualized patient care. Nurses referred to the phones as both "a blessing and a curse" and reported that all their activities from giving medications to interacting with patients and families, often involving complex healthcare issues and treatments, were routinely interrupted with phone calls, many of which were insignificant and/or redundant. Nurses reported that patients and families resent having their time and interactions with nurses interrupted by the nurse's phone ringing. While constant phone availability was initiated to
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improve patient care coordination, such a system effectively allows all other groups that interact with nurses to believe they should have unlimited access to nurses, regardless of the activity in which the nurse is involved and the degree of concentration and focus the activity requires. Although strategies that foster unlimited contact with nurses appear to demonstrate recognition of the value of nursing, the true value of nurses and their practice, however, will not be realized until others recognize that uninterrupted time, focus, and concentration are essential to caring, competent nursing practice and, again, such realization will only occur when nurses claim such for themselves. When asked about strategies to ameliorate issues with the Spectra-Link phones, nurses recommended a caller identification system to allow them to see who was calling so they could make the decision whether or not to answer the call at the time or wait until later.

Studies, such as this one, guided by a theoretical framework like Watson's, can demonstrate to nurses how such frameworks can guide basic nursing practice. Nurses often view nursing theory as impractical and removed from everyday nursing practice. Even nurses in hospital systems guided by a theory like Watson's may not see its value or understand its application to their practice. This study was, in fact, inspired by a presentation given by Watson at a Magnet hospital where nursing practice is guided by her theory. Watson is invited to the hospital periodically to speak to nurses and to share simple and practical applications of her Caritas Model to their nursing practice, many of which guided this study. A strategy, used by some hospitals, which use Watson's theory to guide nursing practice, is a patient satisfaction survey that asks patients and families questions specific to the kind of nursing care espoused by Watson's caritas framework. For example, the first question on one such survey asks patients and families if they received loving-kind nursing care throughout their hospital stay. Clearly, a question like this makes the hospital's commitment to the kind of nursing practice they want patients and families to receive foremost and leaves no doubt in the hearts and minds of nurses the kind of nursing practice expected of them. Similar questions might also be asked periodically of nurses about the extent to which they give and receive loving-kindness and support from nursing colleagues. Regularly posing such questions makes it profoundly clear to nurses the kind of nursing practice they are expected to demonstrate toward patients and families, as well as toward fellow nurses and healthcare personnel.

Recommendations for Future Research

Findings from this study indicate the need for further research in several areas. Given the love/hate relationship these nurses had with their Spectra-Link phones and the mandate to carry them at all times, research is needed to examine the impact of such telephones on nursing practice and patient care within health systems that require nurses to carry them. Findings from this study that nurses viewed the opportunity to have limited interruption for increased focus and concentration on medication administration as a luxury rather than an essential nursing care requirement, and regretted that others may have been inconvenienced by such, reflect a need for research into strategies that empower nurses to create nursing practice environments that honor the nursing mandate to deliver safe and accurate patient care. Research is also needed within facilities that have adopted Watson's caritas framework to investigate in what ways and to what extent actual nursing practice is guided by theoretical principles. One such study might be an examination of ways to create nursing practice environments where nurses practice loving kindness toward each other and themselves, as well as toward patients, families, and other staff.

References


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