2014

A Healthy Work Schedule: Improving Dynamics for Nurses' Health

Amy Schei

A HEALTHY WORK SCHEDULE: IMPROVING DYNAMICS FOR NURSES' HEALTH

AMY SCHEI

Submitted in partial fulfillment of the
requirements for the degree of
Masters of Arts in Nursing

AUGSBURG COLLEGE
MINNEAPOLIS, MINNESOTA

2014

Abstract

Rotating shift work is an unavoidable, integral aspect of nursing at a large hospital in the Midwest; however, the fatigue involved in rotating shift work is avoidable. Research has shown how fatigue related to rotating shifts can impact nurses and ultimately affect patients. Fatigue caused by rotating shift work has been proven to decrease nurses' levels of alertness and vigilance, which directly correlates to higher incidences of errors with patients. In addition, nurses who work rotating shifts have been proven to have problems with psycho-physical health, biological functions, and social relationships. It is through an understanding of the risks related to rotating shift work and the application of Watson's Caring concepts and Caritas Processes that nurses have the opportunity to explore strategies to combat the associated negative effects. This exploration of strategies led to a search for options to design a three week schedule that allows for sufficient recovery time between rotating shifts for nurses who work on a medical, surgical, progressive care unit. The creation of a healthy work schedule was based on nurses' feedback and an understanding of the institutional scheduling procedural guidelines. Ultimately the goal is to create a schedule that allocates time for nurses to customize self-care habits and routines that nurtures self in order to serve others.

Keywords: Rotating shift work, healthy work schedule, self-care, fatigue, risk factors, Watson

Aknowledgements

The completion of this project is due to the continued support, encouragement, and contributions of many. I would like to acknowledge my family for always having unweavering faith in my abilities to continue in my educational goals. It is their continual belief that has allowed me to endure even when I am struggling. I would like to thank Joyce Miller DNP, RN for her unwavering encouragement in the creation of this project. Her ability to ease my anxieties was invalueable throughout this academic journey. I am also appreciative of my readers. Joyce Perkins PhD, RN has inspired me to widen my lens of understanding and possibility, and Gina Bloczynski MSN, RN inspired me through her enthusiasm and energy to make any goal a reality. Thank you also to my friends and co-workers that have helped me in the obtainment of my educational goals. Your ability to listen, support, and provide encouragemnt have meant the world to me as I have progressed through this program.

Table of Contents

Figures

Rotating Shifts and Dynamics for Nurses' Health

Chapter One: Introduction

Providing an environment of healing, caring, and safety is the goal of nursing care; however, high levels of fatigue related to rotating shift work can reduce the effectiveness of these goals. The culture of shift work is an integral and necessary part of nursing because care must be provided to patients 24 hours a day, 7 days a week. Although there is extensive research on rotating shift work, medical institutions continue to struggle to find solutions to combat the effects of rotating shift schedules (Chan, 2008; Niu, Chung, Chen, Hegney, O'Brien, & Chou 2010; Peate, 2007). In order to provide safe patient care, it is imperative that medical institutions acknowledge the risk factors associated with rotating shift work to help promote self-care of nurses' and patients' safety. Fatigue related to rotating shift work decreases nurses' levels of vigilance and alertness and can lead to higher incidences of errors that affect patient safety (Admi, Tzischinsky, Epstein, Herer, & Lavie, 2008; Dorrian, Lamond, Van den Heuvel, Pincombe, Rogers, & Dawson, 2006; Institute of Medicine, 2004). When exploring concepts to promote self-care, Watson's (2012) Caring Theory can assist professional nurses in finding ways to reduce the effects of fatigue related to rotating shift work through an understanding of her Caritas Processes. According to Watson, "the goal of nursing is to help persons gain a higher degree of harmony that fosters self-knowledge, self-reverence, self-caring, self-control, and self-healing processes" (p.61). In order for nursing to foster this philosophy in patients, nurses must first embrace self-care in their own lives. Consequently, to promote an environment of self-care, a proposal is to design a 3 week schedule that allows for sufficient recovery time between rotating shifts for

nurses who work on a medical, surgical, progressive care unit at a large Midwest hospital, to decrease risk factors for both patients and nurses.

Background

Nurses have been experiencing the effects of rotating shift work for many decades. Shift work can be defined as any shift worked outside of a 7 a.m. to 6 p.m. schedule, which includes night shifts and rotating shifts. In the United States, it is estimated that 3.3 million professionals work rotating-night shifts, and of those, 60% have complaints of sleep deprivation. It is also estimated that rotating shift workers get one to four fewer hours of sleep per day than workers who work during the day (Niu et al., 2012). In 1993 the book *The Nurse's Shift Work Handbook,* expressed concerns about shift work which are still the same 20 years later (Alward & Monk, 1993). Despite research, there are no standardized guidelines on how to help nurses who work rotating shifts combat the negative effects of their schedule.

Currently the department of nursing at a large Midwestern hospital has a scheduling system for inpatient hospital nurses who work 8-hour shifts and 12-hour shifts. For the purpose of this project, the focus will be individual nurses who work 12-hour shifts. The nurses who work 12-hour shifts are all scheduled to work a rotating schedule of days (7 a.m. to 7 p.m.) and nights (7 p.m. to 7 a.m.). In the past, some units allowed for pairing that allowed two nurses to pair up with one working straight 12-hour days and the other working straight 12-hour nights. However, this practice was never standardized across the institution; it was usually based on nurse manager preference and whether or not the unit used a self-scheduling system. Recently some of the units that allowed this practice to take place have decided they can no longer accommodate pairing

as it makes scheduling more difficult. Therefore, no new pairing is allowed, and if one of the individuals in the pairing leaves the unit, the other individual immediately returns to a rotating schedule.

Base schedules are created for each unit with each position having a schedule pattern with various rotation patterns. These base patterns have nurses working at least one week (Wednesday to Tuesday) of similar shifts. These base patterns are seen more as a guideline for position control than how the actual schedule will look when completed. The only guarantee nurses have with their schedule is the weekend they are scheduled to work. In order to have the coverage for individuals on vacations, medical leaves, or for vacancies, the shifts and days worked during the week are changed to accommodate a unit's needs. Therefore, an individual nurse could work the following assignment for a two week period: Thursday, a 12-hour night shift; Monday, a 12-hour night shift; Tuesday, a 12-hour night shift; Wednesday, a 12-hour night shift; Friday, 12-hour day shift; and, Monday, 12-hour night shift. The problem is that even though the needs of the unit have been met, a nurse is now trying to rotate from a night schedule into a day schedule only to quickly rotate back to a night schedule, which greatly increases a nurse's risk for fatigue.

Research has found that fatigue affects work performance, and having less alert nurses who work rotating shifts creates risk for both nurses and the patients they care for. The term fatigue means more than a lack of sleep; it is related to the timing and duration of sleep. According to the American College of Occupational and Environmental Medicine Presidential Task Force on Fatigue Risk Management (2012), fatigue is the body's reaction to sustained mental and physical exertion, which may be reduced by rest

or sedentary activity. Some of the risk factors identified that increase fatigue include: workload, environmental issues such as light and noise, time awake, sleep deprivation, health factors, and circadian variability. A quantitative study by Admi et al. (2008) reported that nurses' subjective cognitive function was not considerably affected by poor sleep quality; however, objective cognitive function significantly decreased. This decrease in objective cognitive function can be seen in impaired efficiency and risk for injury and accidents to nurses and patients.

Significance to Nursing Practice

The proposal for this project is to create a block schedule system that allows for sufficient recovery time between rotating shifts to decrease risk factors for both patients and nurses. This schedule will allow nurses to engage in better self-care practices related to sleep patterns, health and eating habits, and social interactions outside of the workplace. It will also allow for increased alertness and vigilance which decreases the likelihood of errors related to patient safety. This proposal is supported by the American Nurses Association [ANA] (2006) position statement that encourages medical institutions to "establish policies and procedures that promote healthy nursing work hours and patterns that do not extend beyond the limits of safety for both nurses and patients" (p. 1). The ANA position is to allow for adequate rest between shift rotations and to urge nursing management to assure that rotating shift patterns promote the safety of both nurses and patients.

The Institute of Medicine (1999) also has recommendations related to fatigue from rotating shift work published in the report, *To Err is Human: Building a Safer Health System.* One of the focuses of this report was to promote a culture of safety

through education, identifying and learning from errors, increasing expectations of safety, and developing safe practices. In response to this focus, the Agency for Healthcare Research and Quality (2004) was appropriated $50 million to implement action plans that would promote safety in the work environment. One of those plans was "supporting projects aimed at achieving a better understanding of how the environment in which care is provided affects the ability of providers to improve safety" (p. 5).

The issue of the effects of fatigue and rotating shift work was revisited again by the Institute of Medicine in 2004. Once again it was acknowledged that rotating shift work puts both patients and nurses at increased risk; however, even though there are many strategies that that have been proposed, the best way to implement rotating shifts has not been established. Instead, the Institute of Medicine recommended that intuitions "create mechanisms to detect errors" and "modify work tasks and processes to reduce the risk of error" (p. 229). One of the ways to reduce the risk of error is through the creation of healthy work environments and schedules.

While evaluating the environment of shift workers, and considering ways to improve safety, Admi et al., (2008) found the main risk for injury and accidents included incorrect operation of medical equipment, medication administration errors, and needle stick injuries. Zhao, Bogossian, and Turner (2010) looked at 13 different studies for the association between shift work and work related injuries. When comparing these studies, Zhao et al. found a correlation between shift work and the acute risk for blood and body fluid exposure, needle stick and sharps injuries, musculoskeletal disorders, and motor vehicle crashes.

In addition to the acute risks to safety, there are also several chronic health concerns related to nurses who work rotating shifts. Some health concerns are related to the increased incidence of alcohol use, smoking, caffeine use, and the use of hypnotics and sedatives. According to Niu et al. (2011), 60% of nurses who are shift workers use sleep aids, 62.7% take prescription medications, and 26.9% use alcohol to induce sleep. Prevalent chronic health disorders in nurse shift workers include cardiovascular disorders, gastrointestinal disorders, sleep apnea, obesity, miscarriages, mood disorders, and depression (Peate, 2007).

Combining the acute and chronic risks for nurses associated with shift work illustrates how providing an environment of healing, caring, and safety for patients can be affected. According to Watson and Foster (2003) "nurses are torn between the human caring model of nursing that attracted them to the profession and the task-orientated biomedical model and institutional demands that consumes their practice" (p.360). The institutional demands of rotating shift work can negatively impact nurses' ability to be authentically present when working with patients.

Nursing Theoretical Perspective

To enable nurses to serve others, one needs to understand Watson's (2008) Caring Theory and more specifically her Caritas Processes. These Caritas Processes explain "one cannot enter into and sustain Caritas practices for caring-healing without being personally prepared" (p. 47). For nurses to be personally prepared, they must understand the meaning of each of Watson's Caritas Processes applicable to self-care and the nurse-patient relationship. Nurses need to understand the value of the Caritas Processes in order to know the importance of taking care of oneself, such as taking reflective pauses to

reset oneself to feelings of compassion instead of blaming or judgment. To have a deeper understanding of how the Caritas Processes can be utilized to promote a healthy work environment, the concepts of self-care, trusting relationships, healing environments, and transpersonal caring moments can be explored.

Caritas Process 1 is "cultivating the practice of loving-kindness and equanimity toward self and other" (Watson, 2008, p. 47). The value of this process is to know the importance of taking care of oneself, which includes taking reflective pauses to reset oneself to feelings of compassion instead of blaming or judgment. This is important especially as nurses feel fatigued; if one does not allow for personal feelings of positive intention, it is difficult to experience "transpersonal caring relationships" (Watson, 2008, p.78).

Caritas Process 4 is "developing and sustaining a helping-trusting caring relationship" (Watson, 2008, p. 71). The relationships formed between nursing leadership and individual nurses is what fosters the relationship nurses have with each other, their patients and themselves and helps to provide for healing benefits for all involved. It is the quality of these relationships that can help determine the effectiveness of building a helping, trusting, caring relationship. Fatigue due to shift work can decrease nurses' effectiveness of fostering compassion and sensitivity in situations. However, it is the nurses who attend to their own personal needs and emotions that have the potential to create a healing, trusting, and caring relationship with others around them, which then allows for the creation of a healthy and healing environment.

Caritas Process 9 is "administering sacred nursing acts of caring-healing by tending to basic human needs" (Watson, 2008, p. 143). Providing for the basic needs of

patients needs to be seen as a privilege. Opportunities to make a difference when patients are at their most vulnerable state are an honor which few other professions experience. It is in these simple moments that a nurse can make the biggest impact to help restore dignity. Touching the spirit of another can be a simple touch, a simple word of encouragement, or just being present. These compassionate moments can also help nurses to restore their own beliefs and values and combat the effects of fatigue. Witnessing and understanding the simple things in life allow for the greatest gratifications the nursing profession has to offer.

It is through an understanding of self-care, development of trusting relationships, and the importance of tending to basic human needs that one can conceptualize one's own transformational caring moments. Utilization of Watson's (2008) Caritas Processes can be as simple or as complicated as one chooses. Incorporating the three identified Caritas Processes by Watson can be helpful in constructing the best approach to help nurses understand how to combat the effects of fatigue in order to provide safe patient care.

To be genuine when fostering behaviors of self-care, trust, and healing, nurses must be fully engaged in the caring process. This may not be possible if one is dealing with the symptoms of fatigue. Pipe and Bortz (2009) incorporated Watson into their understanding of how one can nurture oneself to serve others. They found that in order to gain a true sense of authenticity, nurses need to cultivate an understanding of self, first by reflecting on what makes one happy or feel cared for. Next nurses need to understand their sources of strength, joy, and meaning as in Watsons's (2008) third Caritas Process of cultivating one's own spiritual practice. Once nurses become mindful of their self-

awareness, they are better prepared to care and nurture others (Pipe & Bortz, 2009). To be prepared to care and nurture, nurses must focus on themselves, their relationship with their patients, and other health care professionals. Nurses must continue to be compassionate and aware of the needs of the patient or risk the consequences of patients feeling fear, helplessness, or lack of control (Watson, 2008).

Understanding how to combat the effects of fatigue due to rotating shift work in nursing practice is crucial. Fatigue can lead to adverse effects on patient outcomes and increase nurses' health risks. Fatigue due to rotating shift work has a profound effect on health institutions. By respecting, valuing, and finding strategies to combat the effects shift work has on an individual, nurses will have the vitality to create transformational caring relationships with their patients. There are no immediate solutions; however, using the principles of Watson's (2008) concept of caring and three of her Caritas Processes can uncover strategies to develop a work schedule that decreases fatigue. Chapter Two will explore literature to gain a better understanding of how the creation of a healthy work schedule can impact nurses' safety and patient safety, the responsibilities of nurse managers and healthcare institutions, and strategies to promote self-care.

Chapter Two: Literature Review

Most nurses are either currently shift workers or have been in the past. According to Alward & Monk (1993), approximately 75% of all nurses in the United States work in institutions that require 24-hour a day staffing. Rotating shiftwork is an unavoidable integral part of nursing. Literature reviews have shown the safety implications rotating shiftwork can have on both nurses and their patients. While there is extensive research on the topic of rotating shift work, many nurses still struggle when trying to incorporate rotating shift work into their lives. To better understand the implications of rotating shift work this chapter will focus on a review of literature that explores the impact of work schedules on nurses' safety, patients' safety, the responsibilities of nursing leadership and medical institutions, and strategies to help promote self-care.

Nurse's Safety Concerns

To understand how rotating shift work affects nurses' safety, one must look at what causes the safety concerns and then both the acute and chronic conditions that are consequences of those causes. One of the common causes that effects nurses' safety is how lack of sleep quality can lead to fatigue. Nurses who are unable to get adequate quality of sleep have problems with biological functions, social relationships, work ability, and psycho-physical health (Peate, 2007). These sleep problems correlated to disturbances in circadian rhythms. The hypothalamus generates the circadian rhythm which helps to regulate the occurrence of sleep within 24 hours and governs physiological systems such as temperature control, alertness, and the production of cortisol and melatonin (Peate, 2007).

The production of cortisol was a common theme found in many quantitative and qualitative research articles about shift work. According to the qualitative research of Niu et al., (2011), nurses who are rotating shift workers have a circadian rhythm in a state of lethargy, and they feel more fatigued because the quality and quantity of sleep is insufficient. Normally peak cortisol levels are observed the moment one wakes up in the morning, decreasing throughout the day. Nurses who rotate shifts, which include night shifts, have lower levels of cortisol than nurses who work straight day shifts; however, like day shift workers, nurses who rotate shifts have cortisol levels that are higher during the day with a decrease throughout the day, and the lowest levels recorded at night. Niu et al. explained that it is because of these higher cortisol levels during the day, that rotating shift workers have difficulty getting quality sleep.

Another theme uncovered was discussion of rapid eye movement (REM) sleep. REM is the final or fifth stage in the sleep cycle. According to Niu et al., (2011), for individuals who have a normal sleep pattern, each sleep cycle is 90 to 100 minutes. In nurses who are rotating shift workers, some stages of the sleep cycle were found to be shorter. Rotating shift workers' day time sleep, when working nights, can also be affected by environmental factors such as light, noise, and temperature; because of these factors, nurses who work rotating shifts are sometimes awakened during REM sleep. This deprivation of REM sleep is found to result in restlessness and emotional instability (Niu et al., 2011).

The effects of sleep deprivation can also be linked to both acute and chronic health concerns in nursing. Zhao et al., (2010) wanted to gain a better understanding of the acute risks associated with rotating shiftwork, specifically when rotating to night

shifts. Of the seven studies identified, they found that 7.9% of nurses annually report exposure to blood and body fluids, and most frequently, those who reported exposures, had been working at least 7 hours, with 60% of the exposures happening during a night shift. One of the studies identified that shift work increased the risk of a needle stick or sharps related injury by 1.6 times (Zhao et al., 2010).

Another acute risk Zhao et al. (2010) identified was motor vehicle crashes. In one study 8% of the study participants reported having a motor vehicle crash, and 58% reported a close call related to a motor vehicle crash. Nearly 75% of the crashes and 80% of the close calls were reported after a night shift. Scott et al. (2007) found that nurses who work rotating shifts reported nodding off while driving to and from work four times as often as nurses who worked day, evening, or night schedules. In addition, Kellar (2009) found that remaining awake for more than 19 hours is comparable to a blood alcohol concentration of 0.05%. And for those individuals who do not sleep before their first night shift, remaining awake for 24 hours is comparable to a blood alcohol concentration of 0.1%, which exceeds the limit for legally operating a motor vehicle in most states (Keller, 2009).

In addition to the acute health concerns, there are also many chronic health concerns attributed to rotating shift work. Some of the chronic disorders include ischemic stroke, obesity, adverse pregnancy outcomes, and cardiovascular disease. Brown et al. (2009) conducted a study looking for a connection between nurses who work rotating shifts and their risk of ischemic stroke. The study had 80,108 nurse subjects who from 1976 were asked every 2 years “what is the total number of years you worked rotating shifts, smoking status, body mass index, and alcohol consumption”

(p.1371). Every four years they were asked about their "fruit and vegetable intake, amount of physical activity, menopausal status, use of Aspirin, if they had been treated for coronary heart disease, had high blood pressure, elevated lipids, or diabetes" (p.1371). Once during the study, in 1992, their socioeconomic status was assessed, and once in 1986, their hours of sleep and snoring were assessed. Brown et al. (2009) found no clear mechanism, but rather just possibilities thought to link rotating shift work and risk of stroke. The first possibility linking rotating shifts to stroke was increased risk of sleep apnea due to sleep deprivation. Another possibility linking rotating shift work to stroke was a decrease in melatonin production due to increased light exposure during night shifts. The decrease in melatonin production could be linked to an increase in coagulability and blood pressure. The last possibility examined blood pressure; normally during sleep blood pressure lowers; however, nurses who work evening or night shift rotations have been found to have "nondipping" (p.1374) blood pressures, which is seen as a risk factor for stroke. Even though there is no clear mechanism linking rotating shifts and stroke, the results did show a direct correlation. Brown et al. found that there was a 4% increase in the risk of ischemic stroke for every five years working rotating shifts. This shows a moderate risk of stroke after extended years of working rotating shifts.

When studying the effects of obesity with nurses who work rotating shifts once again the results showed an increased risk. Zhoa, Bogossian, and Turner (2012) focused their research on the correlation between nurses who worked rotating shifts and were obese/overweight and the correlation between nurses who worked straight night shifts and were obese/overweight. Within the sample of 2086 female nurses, 759 worked

rotating shifts, and 115 worked straight night shifts; the results showed 31.7% were classified as being overweight, and 27.1% were classified as being obese. The nurses who worked rotating shifts were found to have the highest percentage of being overweight at 33.3%, and the nurses who worked straight night shifts were found to have the highest percentage of obesity at 31.7%. Most of the factors that were found to contribute to obesity and being overweight were modifiable lifestyle habits such as poor diet, limited physical activity, smoking, and alcohol consumption (Zhoa et al., 2012).

Rotating shift work has also been shown to be a proponent in the risk of spontaneous abortion and cardiovascular disease. Quansah and Jaakkola (2010) found there was a moderate risk of spontaneous abortion related to rotating shift work; however, these results were based on limited data. Increase in cardiovascular disease can be related to many factors in nurses who work rotating shifts. First there are the modifiable lifestyle habits that can contribute such as smoking, diet, and physical activity. Another contributor to increased risk is decreased melatonin. Part of the rotating shift includes night shifts, and during sleep, exposure to light decreases melatonin synthesis. This decrease in melatonin is thought to promote atherosclerosis, increase blood pressure, and increase hypercoagulability resulting in heart disease (Brown et al., 2009).

There are several other chronic disorders mentioned in the literature related to rotating shift work such as gastrointestinal disorders and cancer (Admi et al., 2008; Kellar, 2009; Schernhammer, Razavi, Li, Qureshi, & Han, 2011; Zhoa et al., 2012). The causes and acute and chronic risks associated with rotating shift work are a reason for concern for all nurses. Every nurse has different tolerances related to rotating shift work,

but it is how the individual nurse can effectively balance the effects of his or her shift that will make the biggest impact on patients' safety.

Patients' Safety Risks

Fatigue due to rotating shift work can lead to adverse effects on patient outcomes, patient injuries, and increased health care errors. These unintentional effects are detrimental to the trusting relationships formed with patients and their families. Patients who are admitted to the hospital are vulnerable; they have lost control of certain aspects of their health and life and are trusting that they will be treated with dignity and will be advocated for. Many members of the healthcare team are involved in patient care; however, nurses are the one member of the healthcare team involved with patients 24 hours a day, 7 days a week. Nurses are the patients' advocates, champions, and most importantly nurses care. Patients have confidence and trust that nurses are looking out for their best interests. According to Swift (2013) the yearly gallop poll showed the nursing profession as being one of the most trusted professions. In 2013, Americans were asked how they would rate the ethics and honesty standards of many different professions, and 82% of Americans rated nurses at the top of the list. Nurses have been at have top of this yearly poll since 1999, with the exception of 2001, after September 11 when firefighters were at the top.

The honor of caring of patients at their most vulnerable state is not is taken lightly by nurses. Nurses are taught from their first day of nursing school the responsibility to do no harm. This is reinforced at graduation ceremonies when asked to repeat the Florence Nightingale Pledge:

> *I solemnly pledge myself before God and in the presence of this assembly, to pass my life in purity and to practice my profession faithfully. I will abstain from whatever is deleterious and mischievous, and will not take or knowingly administer any harmful drug. I will do all in my power to maintain and elevate the standard of my profession, and will hold in confidence all personal matters committed to my keeping and all family affairs coming to my knowledge in the practice of my calling. With loyalty will I endeavor to aid the physician in his work, and devote myself to the welfare of those committed to my care*. (Florence Nightingale Pledge, 2014, p. 1)

This pledge has had some changes over the years with some parts being removed such as "before God" and "to pass my life in purity," and some passages have been changed such as "aid the physician in his work," which has been changed to "collaborating with the health care team" (Chin, n.d., p. 1). However, the essence of the message remains the same, nurses are dedicated to providing care to their patients with caring intentions to the best of their ability. The intent of this section is to focus on the elements of ability of caring. When focusing on the word ability, the focus shifts to the ability to contemplate what is within ones control when caring for self or patients.

Fatigue due to rotating shifts can have serious consequences for patients (Berger & Hobbs, 2006; Dorrian et al., 2006; Kellar, 2009). While nurses cannot control the need for 24-hour care, the need to control their tolerance of rotating shift work is essential to patient safety. One main focus when looking at patient safety in health care is medication errors. Kohn, Corrigan, and Donaldson (2000), as a part of the Institute of Medicine published *To Err is Human; Building a Safer Health System;* the goal of this report was

to take a closer look at how health care errors occur, to learn from these mistakes, and to look for solutions instead of placing blame. The leading cause of death in hospitalized patients is medical errors. Of the over 33.6 million hospital admissions in 1997, at least 44,000 deaths could be attributed to medical errors. In 1993, 7000 deaths could be attributed to medication errors. This accounted for one in every 854 patient deaths. Kohn et al. (2000) also found that 2% of patients admitted to the hospital experience preventable medication errors.

When exploring why preventable medication errors happen the focus is often on those who give the medication, which in most cases is a nurse. When looking to the literature to find links between the effects of nurses who work rotating shifts and patient safety, there are few studies that have a direct link, as most of the research focused on residents. Of the research that speaks directly to nurses, the causative agent has been proven to be fatigue; however, fatigue also has many causative agents. Dorrian et al. (2006) attributed fatigue to shifts in excess of 12 hours, working more than 40 hours in a week, and increased overtime. Chan (2008) felt that the strain of rotating shifts contributed to fatigue and reported that nurses who work rotating shifts present with a 2.5 times greater risk of reporting near-miss errors and accidents. These near-misses were associated with decreased reaction time and lapses of concentration. The common theme found in all of the research was that further research studies were needed, which then leads one to understanding how fatigue can affect caring intention.

The Florence Nightingale Pledge (Florence Nightingale Pledge, 2014, p.1) also compels nurses to understand their own personal values of caring intention. To have caring intention one must be authentically present; however, as nurses become busier and

overwhelmed by rotating schedules and fatigue, it can become increasingly difficult to remain authentically present. The nurse-patient relationship is vital because once patients or family members form a bond with a nurse they are more open to expressing their feelings and emotions without fear of judgment. If a nurse is fatigued, even if there are good intentions, it is difficult to truly be present and authentically listen. If nurses are not sensitive to the effects of fatigue on themselves, there is a risk that they will be closed off to understanding the emotional burdens patients may carry.

Watson (2002) stated that "nurse's values, ethics, consciousness, and intentions have to be cultivated for mindful, reflective practices, that engage the mind, heart, and embodied spirit of the nurse" (p. 4). Watson asks nurses to be mindful of their intentions and values to promote the development of trusting relationships. This will in turn provide for transformational caring moments and healing. Nurses are privileged to be introduced to patients and their families when they are dealing with illness, pain, stress, anxiety, or despair. This privilege allows for the opportunity to develop more profound, compassionate relationships. It can be difficult to set positive intentions and be open to the opportunity of transformational caring moments if one is fatigued dues to rotating shifts. "Relationship-centered care is considered intrinsic to healing" (Watson, 2008, p. 72), and healing is the purpose of any health care institution; however, more needs to be done to assure relationship centered care is attainable.

Institutional Responsibility

The concerns nurses face due to rotating shift are complicated and there are no perfect solutions, however; there are approaches medical institutions and the nursing management within can adapt to help nurses combat the effects of rotating shifts. The

topic of rotating shift work and the responsibilities of medical institutions have been examined by the National Institute for Occupational Safety and Health Administration (NIOSH) as a part of the U.S. Department of Health and Human Services, The Institute of Medicine, The American Nurses Association (ANA), The Joint Commission (TJC), and many other professional or government agencies. The goal of these professional or government agencies is to engage leadership in discussing the effects of shift work and strategies to reduce those effects (American Nurses Association, 2006;Institute of Medicine, 2004; U.S. Department of Health and Human Services, 1997).

U.S. Department of Health and Human Services (1997) created a pamphlet called "*Plain Language about Shiftwork"*, that provided basic information about shiftwork. According to their research, it was felt that institutions may rely on rotating shiftwork more than straight shifts because they are thought to be fairer to all employees, and that the effects of straight nights were seen as comparable to rotating shifts in that both have individuals going back to a day schedule when they are off to accommodate the schedules of family and friends. One of the suggestions of the U.S. Department of Health and Human Services was for leadership to create educational awareness programs to help workers understand the effects rotating shift work.

Kohn, Corrigan, & Donaldson (2000), as a part of the Institute of Medicine, provided institutions with not only the statistics involving patient safety errors, but also recommendations to reduce those errors. Some of the recommendations were directed towards the creation of federal agencies such as the creation of the Centers for Patient Safety, but the creation of "principals for the design of safety systems" (p.165) within medical institutions was also identified. The first principle was to "provide leadership"

(p.166) which included making patient safety everyone's priority and responsibility, with the development of expectations and creation of mechanisms to identify unsafe practices (Kohn et al.). The second principle was directed towards "respecting human limits" (p.170). These principles directed institutions to avoid reliance on memory and vigilance and to instead standardize and simplify processes. The third principle was to "promote effective teamwork" (p. 173) with a focus of patient safety. The forth principle was "anticipate the unexpected" (p.174) by having a proactive method to explore processes that were threats to safety. The last principal was to "create a learning environment" (p.178) which encouraged the reporting of errors without the threat of reprisal and opportunities to learn from the errors found (Kohn et al.).

The response to the recommendations of the Institute of Medicine was positive and immediate. One of the initiatives of President Clinton's administration was to have the Agency for Healthcare Research and Quality (AHRQ) develop projects that looked to better understand how health care workers are affected by the environments they work in ("Institute of Medicine", 1999). In response the AHRQ funded the Institute of Medicine study that helped medical institutions identify risks to patient safety and some solutions to those problems (Agency for Healthcare Research and Quality, 2004). One of those risks was identified as work hours, specifically the effects of fatigue from shift work (Institute of Medicine, 2004). The evidence reviewed included the effects of fatigue from shift work that showed a direct correlation to "diminished attention, slower reaction times, compromised problem solving, errors of omission, and reduced motivation" (p.227-228). In response to the evidence, the Institute of Medicine committee found no

evidence that indicated that extra training, professionalism, or motivation could overcome the effects of fatigue related to rotating shift work (Institute of Medicine).

The ANA has also looked for ways to improve patient safety by encouraging nursing leaders to promote healthy work hours. In 2006 the ANA released a position statement to assure that patient safety "encourages employers of registered nurses to establish policies and procedures that promote healthy nursing work hours and patterns that do not extend beyond the limits of safety for both nurses and patients" (American Nurses Association, 2006, p. 1). The goal of this position statement was to "ensure a work schedule that provides for adequate rest and recuperation" (p.1) between rotating shifts. The ANA also found evidence that linked rotating shiftwork to difficulty in problem solving, decreased motivation, errors of omission, decreased reaction time, and lack of attention to detail.

The Joint Commission (TJC) has also given recommendations to medical institutions related to healthy work hours. Reed (2013) found TJC recommended that policies related to fatigue related risks, such as rotating shift work, be identified and addressed to find solutions to this necessary part of hospital nursing. Reed also felt that in order to advocate for their nurses, institutions needed to keep the lines of communication open between staff nurses and leadership to help empower nurses to find solutions to decrease fatigue without fear of reprisal.

Chan (2008), after concluding that 70% of nurse shift workers had insufficient sleep and higher strain and symptom levels, encouraged management to provide more support to nurses to help them cope with the stress of rotating shift work. Nasrabadi et al. (2009) suggested managers be better educated about the impact rotating shift work has

on nurses' lives so they are able to improve working conditions and help nurses receive the resources needed to reduce the negative effects of rotating shift work. There was also the message that rotating shift work should be discussed with nursing students to begin healthy habits earlier. Any opportunity to educate nurses or nursing students was recommended, including planning night work education programs on prevention and management of symptoms.

Another approach from management is to combat the social isolation rotating shift workers have by acknowledging the differences between day and night shifts. Information on the effects of shift work needs to be communicated to all nurses, acknowledging the sacrifices and compromises rotating shift workers make. Management can also make sure that nurses feel valued and involved by encouraging their input and expertise. In addition, management can allow for educational offerings both during the day and at night to promote team building, demonstrating a concern for the difficulties in attending meetings (Claffey, 2006).

The responsibility of medical institutions and their nursing leaders is further defined in the code of ethics for nurses. Interpretive statement 6.3 in the code of ethics states "acquiescing and accepting unsafe or inappropriate practices, even if the individual does not participate in the specific practice, is equivalent to condoning unsafe practice" ("Interpretive statement 6.3", 2010, p. 11). The task of effectively managing nurses who work with rotating shifts is a difficult challenge presented to medical institutions. The need to ensure proper staffing and safe working environments is complicated and the successes of suggested strategies in the research can be individually dependent based on tolerance.

Strategies

There are many beneficial strategies found in the literature that would help nurses to reduce the effects of rotating shift work. Three strategies identified in research included: examining alternate shift rotations, looking for solutions found during shift work, and looking for solutions to promote self-care (Admi et al., 2008; Chan, 2008; Claffety, 2009; Kellar, 2009; Nasrabadi, Seif, Latifi, Rasoolzadel, & Emami, 2009; Niu et al., 2011; Peate, 2007; Silva-Costa, Rotenberg, Griep, & Fischer, 2011; & West, Boughton, and Byrnes, 2008). Each research study reviewed provided various recommendations to these solutions. The first strategy looked at improving the design of the shift schedule system by focusing on how rotating shifts could be scheduled to allow nurses to better adjust to changing shifts. Some of the research recommended applying the principles of rotation for nurses working 8-hour shifts. An example would be scheduling nurses to work days for a period of time, followed by evenings, and then nights (Admi et al., 2008). Nasrabadi et al. (2009), also favored a modification of factors, such as the direction of shift rotation, based on qualitative research that showed rotating shift work was perceived as having a negative "socio-cultural impact" (p. 500), and was identified as having negative health impacts when conducted in Iran. Another concept of rotation is the allowance of breaks between shift rotations. Niu et al. (2011), recommended that nurses who work rotating shift should be allowed a minimum of one day off before they start working a new shift. Kellar (2009) advocated for working no more than two night shifts in a row and an equal distribution of days off with work days. It was found that most researchers do agree that the worse rotation is a weekly rotation.

This type of rotation is challenging because just as nurses are adjusting to their current shift, they must resynchronize their sleep schedule to adjust to a new shift.

The next strategy to reduce the effects of rotating shift work was looking for solutions found during shift work. Some ideas included taking scheduled breaks with an emphasis on moving around and interacting with co-workers, having bright lighting, eating healthy snack food, and avoiding caffeine (Peate, 2007). The most common and controversial theme found in the research was the concept of taking naps during a night shift.

Night shift napping is often frowned upon by leadership, and in some institutions it can lead to termination. In a field where ones work involves the safety or health of others, researchers are finding that naps as short as 20 minutes can result less fatigue (Silva-Costa et. al., 2011). While the benefits of napping were shown in both qualitative and quantitative research, most listed similar barriers that included lack of support from leadership, nurses felt disoriented after a short nap, and the unpredictability of the patient population.

The third strategy involved how to incorporate self-care techniques into one's life in order to decrease the effects of rotating shift work. Most of the self-care recommendations found in the research talked of preparing for shift work by examining ways to prevent fatigue. Peate (2007) suggested attempting to be both mentally and physically prepared beginning with solutions in the home. An effort should be made to avoid the use of electronics in the bedroom, which includes televisions. Other suggestions found in research suggested encouraging nurses to practice healthier

lifestyles by including regular exercise, stress coping systems, and a balanced diet (Admi et al., 2008;Chan, 2008; Claffey, 2009; Peate, 2007).

West et al. (2008), found a different approach to self-care techniques. Their phenomenological research found that in order to minimize the effects of shift work some nurses arranged their life around shift work. The goal of the nurses studied was to minimize the effects of shift work on their family members. This was accomplished by conscious efforts to arrange their schedules and family functions around their shifts. One of the problems with this approach is many nurses unfortunately do not have the benefit of the regularity of a schedule.

There is a considerable amount of research that has been completed on the effects shift work can have on patients and nurses as well as valuable strategies that can be used to combat those effects. The gap in all of this research is the lack of proven implementation of strategies. All of the research studied gave recommendations to nursing leadership with data proving the implications to nursing, as well as recommendations for further research. The next step needs to be delivery of the recommended strategies into practice with studies. Research needs to look at the barriers management may face when implementing strategies, and what strategies are realistic in a healthcare environment. Chapter 3 will focus on how the strategy of alternate shift rotations can be used to create the proposal of a healthy work staffing model that allows for sufficient recovery time between rotating shifts and helps with promotion of self-care.

Chapter 3: Developing of a Healthy Work Schedule

Rotating shift work can be difficult to tolerate; it can be detrimental to the health of nurses and can pose safety risks that affect both nurses and patients at a cost to the institutions they work in. I have been a registered nurse for six years and during that time conversations with nurse colleagues indicated many ways in which rotating shift work affected one physically, mentally, socially and emotionally. Currently at the large Midwestern hospital where I am employed there are few strategies in place to help nurses combat the effects of shift work. In addition the current scheduling system does little to alleviate the effects of rotating shift work.

Research has shown that excessive rotation of shifts effects the safety of nurses and patients and one of the strategies to decrease this risk is to improve the design of the shift schedule system by focusing on how rotating shifts could be scheduled to allow nurses to better adjust to changing shifts (Admi et al., 2008; Chan, 2008; Claffety, 2009; Kellar, 2009; Nasrabadi et al., 2009; Niu et al., 2011; Peate, 2007; Silva-Costa et al., 2011; & West et al., 2008). This chapter will focus on the institutional guidelines for how schedules are developed, current schedule patterns used, the creation of an eight week schedule that allows for sufficient recovery time between rotating shifts, and the nursing theory that supports the need for an environment of self-care. This will be based on the unit where I work, an eight bed medical, surgical, progressive care unit, referred to as a multidisciplinary unit.

Institutional Guidelines

There is a lack of scheduling standardization in the Department of Nursing at this large Midwestern hospital. The hospital has some units using self-scheduling, with the

balancing after staff selections being handled by a scheduling resource representative, while other units rely on central scheduling with an assigned scheduling resource representative. Nurses who use the self-scheduling process on their units are able to enter their preferred schedule following unit guidelines. Some of these guidelines may include number of off shifts or number of Fridays required to work in a 4 week block. These schedule preferences are reviewed by a scheduling resource representative to make sure the targeted number of staff needed for each shift is met. If those targets are not reached, then the scheduling resource representative will move shifts to balance the schedule. Other nursing units rely on central scheduling. This process has a scheduling resource representative developing the schedule based on the needs of the unit and any requests nurses may have submitted for days off. In both processes, the schedule is reviewed with the nurse manager to ensure targeted staffing goals are met.

In the Department of Nursing, scheduling resource representatives and nurse managers use procedural guidelines to create a base schedule and balance schedules. In creating base schedules, scheduling options need to be explored that balance patients' needs, the units' needs, and staff satisfaction. Some of the options looked at include base schedule patterns, individual scheduling patterns, holiday rotation, and weekend rotation (MC Intranet, 2014).

Base scheduling patterns are based on different shift options available. In the Department of Nursing four schedule patterns are available: straight 8-hour evenings, straight 8-hour nights, 8-hour rotation of days and evenings, and 8 or 12-hour rotation of days and nights (MC Intranet, 2014). There are no straight 12-hour day or night schedule patterns; however, based on individual unit guidelines and nurse manger approval, nurses

who work the same number of hours per week and the same weekend may pair their scheduling patterns to allow for straight 12-hour shifts.

Individual schedule patterns are based on the length of the shift. The procedural guidelines (MC Intranet, 2014) allow for four different options: all 8-hour shifts, all 12-hour shifts, 8-hour weekday with 12-hour weekend shifts, and a combination of 8 and 12-hour shifts. Holiday and weekend rotation are usually based on the individual scheduling patterns. Nurses who work all 8-hour shifts typically work every other weekend and holiday. Nurses who work all 12-hour shifts typically work every third weekend and holiday. Nurses who work 8-hour weekday and 12-hour weekends typically work every third weekend and every other holiday. Lastly, nurses who work a combination of 8 and 12-hour shifts can be schedule to work either every other or every third weekend and holiday based on the unit's needs.

Current Scheduling System

Currently on the multidisciplinary unit only two scheduling patterns are available; all 12-hour shifts and all 8-hour shifts. Of the eight nurses employed, six work all 12-hour shifts and two work all 8-hour shifts. This unit relies on central staffing with an assigned scheduling resource representative. The current nurse manager allows pairing of schedules on this unit, and there is one pairing currently, affecting two nurses. The nurses involved in the pairing have all signed contracts (see Appendix A) that dictate the conditions of the scheduling agreement. For the multidisciplinary unit, two samples of contracts reveal that the contracts nurses sign lack standardization. There are no standard templates that nurse mangers use in creating scheduling agreements. The general concept of the scheduling agreements is to include the expectations of the agreement and how the

nurse manager will handle absences impacting the ability to uphold the agreement between the two individuals (B. L., personal communication April 11, 2014).

Knowing that there are scheduling agreements in place, the first step in developing a schedule that allows for sufficient recovery time between rotating shifts on the multidisciplinary unit led me to the scheduling supervisor for the Department of Nursing. To gain a better understanding of the current scheduling systems and the process in which schedules are developed, I met with the scheduling supervisor Jane Kloc (alias). Before meeting with her I established eight questions (see Appendix B) to help me gain some insights to how the current system was established. It was difficult to get my questions answered, but in retrospect that difficulty could have been because none of the scheduling resource representatives or their supervisors are nurses, nor do they ever work rotating shifts or any shifts beyond the hours of 8:00 a.m. to 5:00 p.m.

Jane Kloc, when questioned about the evidence-based resources that confirmed the safety risks associated with rotating shift work, seemed to understand the risks; however, she felt that the current system was derived from staff nurses who wanted flexibility with their schedules (personal communication, March 6, 2014). It was the desire for more flexibility that led to self-scheduling on some units. Jane Kloc also felt it was appropriate to have scheduling resource representative versus nurses developing the schedules because it is more cost effective for the institution. "The goal is to have the right person doing the right job, and having scheduling resource representatives develop the schedule was the biggest identifier of cost saving in the department of nursing in 2009, allowing nurses time to be more productive" (J. Kloc, personal communication, March 6, 2014).

The orientation experiences and education provided during orientation for new scheduling resource representatives was also discussed with Jane Kloc. She explained that currently the orientation for a new scheduling resource representative is 6 months long. For the first 3 months, they are paired up with another scheduling resource representative and for the next 3 months work more independently with their schedules being checked. There is no direct education that speaks to the effects of rotating shiftwork; however, preceptors and nurse managers give feedback if the schedule reflects shift patterns that are not favorable. There has not been any discussion related to having scheduling resource representatives experience rotating shift work to gain a better understanding of how scheduling patterns can affect the nurses. Jane Kloc felt that this discussion was not necessary because first, it is not cost effective due to the shift differentials that would need to be paid, and second because the scheduling resource representatives collaborate with the nurse managers of the unit they represent before posting a schedule. It is the collaboration with nurse mangers and preceptors that help guide scheduling resource representatives in the development of unit schedules (J. Kloc, personal communication, March 6, 2014).

Jane Kloc was also asked if there were institutional guidelines that helped scheduling resource representatives in developing unit schedules. She stated that there are hard and soft rules when it comes to the development of schedules. Some of the examples of hard rules that must be followed were that nurses cannot be scheduled for more than 12 hours in 1 day (midnight to midnight), scheduling resource representatives cannot change nurses' weekends or holidays (these are predetermined when the nurse is hired into a position), and scheduling resource representatives cannot change nurses' base

schedule patterns. Examples of soft rules that scheduling resource representatives try to follow are no doubling back, working a 8-hour night shift followed by a 8-hour day shift, for nurses who work 8-hour shifts and no scheduling of more than three consecutive 12-hour shifts (J. Kloc, personal communication, March 6, 2014).

The last topic discussed with Jane Kloc was related to straight 12-hour day or night shifts. This large Midwestern hospital is part of a health system that has hospitals in other communities and states. Exploring scheduling options through online job postings revealed that these other hospitals within the health system do offer straight 12-hour shifts. Jane Kloc stated that straight 12-hour shifts do not work in most units because of three main reasons. First, it was thought that the more senior staff would choose the 12-hour day shift leaving less experienced nurses working 12-hour night shifts, which could be seen as a safety risk to patients. Second, at this Midwestern hospital the staffing is based on workload, and on most units, more staff is needed from 7 a.m. to 11 p.m. A scheduling system that allowed for straight 12-hour shifts would have a surplus of staff from 11 p.m. to 7 a.m. if this scheduling system was adopted. Lastly, the hospital needs to look at "what is fair for all" because it is not fair to new nurses to have undesirable schedules, since one of the goals of schedule development is staff satisfaction (J. Kloc, personal communication, March 6, 2014).

Development of a Healthy Work Schedule

After gaining insight into how the current schedule was developed for the Department of Nursing, my next goal was to produce a questionnaire to learn more about nurses' thoughts and feelings about the current schedule on the multidisciplinary unit (see Appendix C). Of the four nurses who work rotating shifts, three responded. Collectively

these three nurses responded that they were not satisfied with the current rotating schedule pattern on the unit; they felt the current schedule pattern did not allow sufficient recovery time between shifts, and the current shift rotation impacted their work/life balance. When questioned about the optimal scheduling pattern, the responses included straight hour shifts and 12-hour 3 or 4 week blocks of rotating shifts. Responses from the survey distributed to the nurses on the multidisciplinary unit during April of 2014 yielded the following replies related to the current schedule: "no consistency," "dissatisfied," "increased illness due to frequency of rotation," "tired and quite irritable due to frequency of rotation," "unbalanced and disjointed," and "disrupts state of wellbeing."

The responses to the staff satisfaction questionnaire were shared when I met with the scheduling resource representative that develops the schedules for the multidisciplinary unit. Maude Nic (alias) has only worked with the multidisciplinary unit as a scheduling resource representative since September 2013; however, she has been developing schedules for other units within the Department of Nursing for 10 years. While Maude Nic was sympathetic in understanding how rotating shift can affect the nurses on the unit, her main objective is to make sure the staffing needs of the unit are being meet.

Before meeting with Maude Nic, I received the support of the nurse manager of the multidisciplinary unit to look for ways to establish change in the current schedule development as long as the needs of the unit were being met. In addition the current posted schedules were reviewed to look at rotation patterns, and explore different scheduling options. The current schedule (April 9, 2014 through June 3, 2014) on the multidisciplinary unit reflects some of the frequent rotation patterns that the nurses

experience (see Appendix D). Nurse 6 on this schedule experienced four different shift rotations within a three week period, and nurse 4 experienced three different shift rotations. Nurse 6 is going to be retiring in July of 2014. Nurse 6 (personal communication, April 2014) stated that one of the main reasons she is retiring earlier than previously planned is due to the frequent rotating schedule pattern; she also cited benefit changes and nurse manger changes as factors in her decision. Nurse 6 was previously paired with another nurse on the unit, with nurse 6 working straight 12-hour day shifts; however, the nurse paired with nurse 6 left the unit in August. Nurse 6 had expected to work rotating shifts after the termination of her scheduling agreement; however, had not expected the frequency of those rotations. Nurse 6 reported increased difficultly sleeping and fatigue leading to decreased job satisfaction. After almost 30 years as a nurse, nurse 6 felt the best decision was retirement.

It should be noted that before I met with Maude Nic, a decision had been made for the multidisciplinary unit that allowed for the hiring of three additional nurses, a change in scheduling pattern for one of the current nurses, changing a straight 8-hour shift pattern for a straight 12-hour shift pattern, and the retirement in July 2014 of nurse 6 whose scheduling pattern was straight 12-hour shifts. There will also be three additional positions added to the new master schedule with hire dates unknown at this time. With these changes taking place, the new schedule will have 12 positions with all nurses working 12-hour shifts.

The goal of my meeting with Maude Nic after learning of the staffing changes, was to gain a better comprehension of what influences the framework of the new master schedule and how that will influence the development of posted schedules. She stated the

first step in creating the new master schedule would be looking at the staffing analysis report for 2013. This report will detail what the staffing needs were on the multidisciplinary unit for 2013. Next she will focus on the budgeted schedule created for 2014. This schedule lets the scheduling resource representatives know the number of staff budgeted for each day and shift on the unit based on the 2013 staffing analysis report. Lastly, she will meet with the nurse manager to discuss the needs of the unit (M. Nic, personal communication, April 4, 2014).

The new master schedule Maude Nic created (see Appendix E) reflects the recommendation by Niu et al. (2011) that nurses who work rotating shifts have a minimum of 1 day off before they start working a new shift and the requests of the nurses who responded to the staff satisfaction questionnaire. The new master schedule allows for all nurses rotating shifts to have a minimum of 2 days off as they transition to their new pattern.

The new master schedule reflects the recommendations of the U.S. Department of Health and Human Services (1997) to follow a regular schedule pattern. This was also a request of the nurses on the multidisciplinary unit in order to be able to engage in family and other social activities. Because the pattern of the new master schedule is 3 week blocks of rotating shifts, nurses on the unit are able to plan more effectively for activities outside of work. The literature also advocated for working no more than two night shifts in a row (Kellar, 2009); however, this was not built into the new master schedule because most nurses prefer the ability to work three scheduled shifts to allow for a longer block of time off and facilitates continuity (J. Kloc, personal communication, March 6, 2014).

Nursing Theory and Metaphor

Through the creation of a new master schedule, the multidisciplinary unit is promoting an environment of self-care that works toward improving dynamics for nurses' health. Watson's (2011) Caring Theory helps to support the need for a schedule that allows for time for self-care. It is through an understanding of the Caritas Processes that nurses can begin to appreciate the value of self-care, which leads to developing trusting relationships, thus promoting transpersonal caring moments.

Every nurse's progression in the profession is different, and the challenges each faces are unique. Tolerance levels for rotating shift work vary, and each nurse must learn how to navigate a profession where care must be provided 24 hours a day, 7 days a week. Just as nurses need to be aware of the effects of rotating shift work, the institutions they work in should be held accountable to provide strategies and solutions to help nurses combat the effects of their shift rotations. The creation of a healthy work schedule is one strategy that can improve dynamics for health. Without a healthy work schedule, nurses' can experience burnout due to fatigue (Figure 1). Fatigue can affect nurses' ability to practice safely and can negatively impact their health.

Figure 1: Burnout due to Fatigue

Retrieved from:
https://s3.amazonaws.com/mediaManagerLocal/burnout%20overcaring%201.jpg.jpg

The creation of a healthy work schedule is one way institutions can positively impact the effects of rotating shift work. Through the creation of a healthy work schedule, nurses will be better equipped to reignite their relationships with patients, the multidisciplinary team, family, and ones' self (Figure 2). By having a schedule that has a consistent 3-week block rotation pattern with the minimum of 2 days to recover before transition to a new shift, nurses improve their dynamics for health because their bodies are allowed to adjust to their next shift pattern.

Figure 2: Reigniting your Relationships

Retrieved from: http://st.gdefon.com/wallpapers_original/wallpapers/1340_spichka_iskra_fitil_1920x1440_(www.GdeFon.ru).jpg

Once a healthy work schedule has been established and nurses have had time to adapt to the new schedule, the opportunity to achieve enlightenment is presented (Figure 3). Achieving enlightenment is when nurses have the insight and wisdom to understand how a healthier work schedule can influence their work/life balance. Once nurses are mindful of their work/life balance, they are better prepared to confidently influence how they interact with others, which guides them into transpersonal caring moments

Figure 3: Achieving Enlightenment

Retrieved from: http://st.gdefon.com/wallpapers_original/wallpapers/1340_spichka_iskra_fitil_1920x1440_(www.GdeFon.ru).jpg

The metaphor of reigniting ones inner flame to achieve enlightenment is a progression that has several assumptions starting with self. First, burnout due to fatigue does affect nurses' ability to care for self and others. As healthcare demands and needs change, nurses need to "heal our relationships with self" to find "meaning in our own life" so we are able to reignite "our profound compassionate, caring, and healing service in the world" (Watson, 2002, p. 3).

Watson's Caritas Process 1 tells nurses that to be authentically present for others, nurses must attend to practicing "loving-kindness and equanimity towards self" (Watson, 2008, p. 47). The creation of a healthy work schedule allows nurses to better care for themselves. It is important for nurses to be sensitive to their own personal needs and

emotions, which is especially vital for nurses who have increased risk of fatigue due to rotating shift work. Nurses need to strive to take the time for self-care and reflection in order to provide the essential healing act of authentically listening and to work from a patient's frame of reference concerning health care decisions. Self-reflection is a time to look within oneself to become more aware of intentions or emotions.

A second assumption of this metaphor is the creation of a healthy work schedule, which allows nurses time to reignite their relationships to self, allowing for increased alertness which is vital when first interacting with a patient and their family. Watson (2002) spoke of a "value-based approach" (p.4) to nurses' interactions with patients, which focuses on the human aspects of caring. The nursing profession has the distinction of having the opportunity to make an impact in an individual's life when the person is at his or her most vulnerable state. Fatigue related to rotating shiftwork can diminish a nurses' ability to sense when there are opportunities to make the biggest impact on a patient's experience, which diminishes the value of their interactions. "A profession that loses its values is soulless; it becomes heartless and therefore worthless" (Watson, 2002, p. 4)

Watson's (2008) Caritas Process 4 relies on nurses taking time for self in order to reignite their desire to "develop helping-caring-trusting relationships" (p. 71). When assessing a patient and family, in order to be able to enter into a relationship with a family, reflexive consideration of ones' responses is essential. Nurses need to understand a patient's frame of reference in order to engage in meaningful learning experiences. By forming a trusting bond with patients and their families it becomes easier to understand

their perspective and then to tailor needs based around those perspectives, which then allows for the possibility of entering into transpersonal caring moments.

In order for nurses to be fully engaged in the caring process, their interactions must be genuine, which can be difficult if one is dealing with the symptoms of fatigue. Nurses who are engaged in the caring process are engaged in Watson's Caritas Processes. In order for transpersonal caring relationships to take place, nurses must focus on their relationships with self, their patients, and patients' families. Nurses must continue to be compassionate and aware of the needs of the patient or risk the consequences of patients feeling fear, helplessness, or lack of control (Watson, 2008).

The final assumption of this metaphor is that achieving enlightenment is the very essence of what nursing is; it is the ability to enter into the "human to human caring process" (Watson, 2012, p. 75) and to be authentically present for others' needs. Watson's Caritas Process 9 speaks of the privileges nurses have in their interactions with patients providing the most basic, yet essential cares. It is during these interactions that nurses have the greatest potential of entering into a transpersonal caring relationship with their patient; it is these encounters that lead to achieving personal and professional enlightenment. The evaluation of the creation of a healthy work schedule for the multidisciplinary unit will be further assessed in Chapter Four.

Chapter 4: Evaluation

The development of a healthy work schedule that improves the dynamics for nurses' health on the multidisciplinary unit is still a work in progress. In order to evaluate the success of the creation of a healthy work schedule this chapter will describe how to evaluate the success of the new master schedule, analyze and reflect on the experiences acquired throughout the journey towards implementation, and identify insights gained throughout the process.

Evaluation of Success

Through a review of literature, the importance of understanding the effects of rotating shift work and the strategies to combat those effects became apparent. In order to assure a safe work environment for nurses and their patients, the American Nurses Association (2006) "urges employers to acknowledge their responsibility" (p.3). Furthermore, the American Nurses Association recommends as one of their specific actions, that institutions examine and institute scheduling patterns that promote minimal rotation of shifts and adequate recovery time between rotating shifts.

One of the strategies found to be applicable to the multidisciplinary unit was the creation of a schedule that allowed for sufficient recovery periods between rotating shifts. The creation of a new master schedule has been completed based on the premise of having 12 nurses all working 12-hour rotating shift unless a scheduling agreement is in place allowing for pairing of shifts. It is difficult, at this time, to evaluate the success of this new master schedule due to a couple of factors. First, while the new master schedule has been created, three of the positions created within it have not been filled and it has not been ascertained when those positions will be filled.

The second factor that makes it difficult to evaluate the success is that the three nurses who were hired on the multidisciplinary unit will not be starting until July 2014. In addition, two of the three nurses are new to the institution and will have to complete new employee orientation into the Department of Nursing, and all three of the nurses hired will need to complete the Essentials of Progressive and Intensive Care training. The multidisciplinary unit hopes that all three nurses will complete the required orientation by October 2014.

Once the three newly hired nurses have completed their orientation, it would be possible to evaluate the partial success of the new master schedule based on nine nurses working 12-hour rotating shifts. The evaluation tool that would be used to evaluate success would be a Staff Satisfaction Post-Survey (see Appendix F). The goal of this questionnaire would be two-fold. The first goal would be to see if the current staff has noticed any positive effects related to the new scheduling patterns. Next, the questionnaire would help to evaluate the thoughts and feelings of the new staff hired on the multidisciplinary unit. The goal for this unit would be to repeat the questionnaire once all the positions have been filled to glean a true reflection of the success of the new master schedule.

Analysis and Reflection

The abundance of research available about the implications of rotating shifts provides many different strategies to help nurses and the institutions they work for combat the effects of rotating shifts. While there are many different strategies to help nurses reduce their fatigue related to rotating shift work, the vision for the multidisciplinary unit was the creation of a healthy work schedule that was feasible for a

small unit and attainable in the short term. The hope would be that units throughout the Department of Nursing could replicate this idea and work towards the creation of a healthy work schedule.

Watson (2008) stated "our relationship with our self is most critical to all other aspects of healing work, including our own personal health" (p.233). Watson's Caring Theory (2008) supports the metaphor that explaining the need to understand how rotating shift work can lead to burnout due to fatigue, and how to work towards reigniting relationships with self and others. The creation of a new healthy work schedule will give nurses the opportunity to have more control over their work/life balance so they are better prepared to achieve enlightenment through transpersonal caring moments.

As I reflect on this project there are different focuses I could have chosen to help improve nurses' dynamics for health. One focus should look at a greater emphasis placed on educating nurses first on the effects of rotating shifts and second on what they can do to combat those effects. This education should start in nursing school and then should be reinforced in nursing orientation. The purpose of this education would be to help nurses understand how to promote self-care behaviors and a healthy work/life balance through interventions such as sleep schedules, exercise, naps, lighting, and medications.

Another focus of this project could have been to look at how the environment or culture of an institution can affect nurses who work rotating shifts. When looking at the environment, one could concentrate on meals served in the cafeteria, lighting on nursing units, the allowance of breaks and/or naps, and the timing of educational opportunities. All of these focuses also allow for opportunity to improve the dynamics for nurses' health in a positive respect.

Insights Gained

I have learned through this project that in addition to the creation of healthy work schedules, there are many additional things nurses can do to promote self-care and increase their dynamics for health. Simple changes such as watching one's diet by limiting caffeine and eating healthy snacks, including regular exercise, and avoiding electronics in the bedroom when trying to sleep can be effective. The cumulative effect of all of these changes will positively affect one's best prospect of being authentically present when entering into transpersonal caring moments.

My vision of this project has changed as I have transitioned through the process. In the beginning my goal was grand: to effect a change in the scheduling system through the Department of Nursing. I quickly realized that to effect change one must often start small, which is why my focus changed to effect a change in the scheduling system on the multidisciplinary unit. I also had originally hoped to incorporate a 4-week rotating block schedule; however, this proposal did not work well as the nurses on the multidisciplinary unit are scheduled to work every third weekend.

There are barriers to any potential change trying to be implemented, and there are many different strategies recommended when dealing with the effects of fatigue related to rotating shift work. Since the new master schedule is not yet a reality on the multidisciplinary unit, one can only speculate the effects it will have on nursing staff. The goal is that the creation of a new master schedule has the potential to meet the expectations of the project by improving dynamics for nurses' health on the multidisciplinary unit.

Chapter Five: Conclusion

The creation of a new master schedule on the multidisciplinary unit can help to promote improved dynamics for nurses' health. This new master schedule was created to allow nurses 3-week shift blocks that rotate between 12-hour day and 12-hour night shifts and a minimum of 2 days off between switching to a new rotation. Even though no measurement of success is currently feasible on the multidisciplinary unit, research suggests that a schedule that allows for sufficient rest and recovery between rotating shifts helps to decrease the effects of fatigue related to rotating shift work (American Nurses Association, 2006).

While the creation of a healthy work schedule is seen as beneficial in decreasing nurses' fatigue related to shift work, there are many other strategies that need to be considered. Rotating shift work has a profound effect on healthcare institutions, and the significance of understanding how to combat these effects is imperative. There are no straightforward, immediate solutions even though considerable research has been completed on the effects of rotating shift work on patients and nurses. Most of the research reviewed gave recommendations and provided data on the implications to nursing, as well as recommendations for further research. The gap in the research is the lack of proven success following the implementation of strategies. The next logical step would be to study the nurses who work in healthcare institutions that have implemented strategies to combat the effects of rotating shift work.

Future Areas of Study

The next step I would look at in promoting an environment of healing, caring, and safety would be the creation of an education program. The focus of this program would

be teaching nurses how to adapt to rotating shift work through an understanding of circadian rhythms, work/life balance, and health issues. The section of circadian rhythms would detail the importance of how rotating shifts affects ones sleep schedule and what one can do to offset or reduce the effects of fatigue. The section of work/life balance would look to explore how nurses can maintain a social existence while incorporating their rotating shifts. The last section of health concerns would look to educate nurses about the potential health risks associated with rotating shift work and what one can do to reduce one's risk.

This educational program could be shared in nursing schools, in orientation, and as an educational module to current practicing nurses. When educating nursing students about the effects of rotating shift work, it would be advantageous to have them personally experience rotating shifts as part of their clinical experience. The same is true of new nurses who are orientating to the Department of Nursing. These would be opportunities for both student nurses and orientees to exchange ideas with their preceptors on ways to cope with the effects of rotating shift work. For the current practicing nurse, an educational module can help generate new ways of coping or highlight risky health behaviors. The goal of this education program would be to see nurses improve health dynamics and enhance safe practices for themselves and for their patients.

Implications

One of the implications discussed in Chapter One was the need to decrease risk factors of rotating shift work for both nurses and patients. The IOM (1999) recommended that institutions promote a culture of safety through increasing expectations of safety and the development of safe practices. In 2004 the IOM revisited

the topic of rotating shift work and further recommended that institutions "modify work tasks and processes to reduce the risk of error" (Institute of Medicine, 2004, p. 229). The creation of a new master schedule for the nurses on the multidisciplinary unit is a modification of scheduling that has the potential to reduce the risk of error and promote a culture of safety. Through the creation of this schedule nurses should experience less fatigue and sleep deprivation due to a minimum of two days off between rotating shifts and three week rotating shift blocks. This schedule allocates time for nurses to customize self-care habits and routines that nurture self to serve others.

It is vital that nurses and the institutions they work for make a conscious effort to look for strategies that promote the creation of a healthy work schedule that allows for sufficient recovery time between rotating shifts. An understanding of institutional guidelines and current scheduling patterns as well as my position as a nurse on the multidisciplinary unit that gave me the opportunity to look for methods to promote a healthy work schedule improving dynamics for nurses' health.

The Dalai Lama said "In dealing with those who are undergoing great suffering, if you feel 'burnout' setting in, if you feel demoralized and exhausted, it is best, for the sake of everyone, to withdraw and restore yourself" (Buddha quotes: Resource for everything Buddha, n.d., p. 1), which is a synopsis of this project. When nurses are feeling the symptoms of burnout due to fatigue they owe it to themselves and those placed in their care to reignite their relationship with self and others in order to enter into a transpersonal caring relationship where achieving enlightenment is possible.

References

Admi, H., Tzischinsky, O., Epstein, R., Herer, P., & Lavie, P. (2008). Shift work in nursing: Is it really a risk factor for nurses' health and patient safety. *Nursing Economic*$, *26*(4), 250-257. Retrieved from http://ezproxy.augsburg.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=34179541&site=ehost-live

Agency for Healthcare Research and Quality. (2004). Retrieved from http://psnet.ahrq.gov/resource.aspx?resourceID=2123

Alward, R. R., & Monk, T. H. (1993). *The nurse's shift work handbook*. Washington D.C.: American Nurses Publishing.

American College of Occupational and Environmental Medicine Presidential Task Force on Fatigue Risk Management. (2012). Fatigue risk management in the workplace. Journal of Environmental Medicine, 54(2), 231-258. http://dx.doi.org/10.1097/JOM.0b013e318247a3b0

American Nurses Association. (2006). *Position statements: Assuring patient safety: The employers' responsibility in promoting healthy nursing work hours for registered nurses in all roles and settings*. Retrieved from http://www.nursingworld.org/MainMenuCategories/Policies-Advocacy/Positions-and-Resolutions/ANAPositionStatements/Position-Statements-Alphabetically/Assuring Patient Safety.pdf

Berger, A. M., & Hobbs, B. B. (2006). Impact of shift work on the health and safety of nurses and patients. *Clinical Journal of Oncology Nursing*, *10*, 465-471. http://dx.doi.org/10.1188/06.CJON.465-471

Brown, D. L., Feskanich, D., Sanchez, B. N., Rexrode, K. M., Schernhammer, E. S., & Lisabeth, L. D. (2009). Rotating night shift work and the risk of ischemic stroke. *American Journal of Epidemiology, 169*, 1370-1377. http://dx.doi.org/10.1093/aje/kwp056

Buddha quotes: Resource for everything Buddha. (n.d.). Retrieved from http://www.buddhaquotes.co.uk/Buddha-Quotes/In-dealing-with-those-who-are-undergoing-great-sufferingd/#.U3pPxo1OVow

Chan, M. F. (2008). Factors associated with perceived sleep quality of nurses working on rotating shifts. *Journal of Clinical Nursing, 18*, 285-293. http://dx.doi.org/10.1111/j.1365-2702.2008.02583.x

Chin, Q. (n.d.). *What is the nursing oath*. Retrieved from http://www.ehow.com/info_8376352_nursing-oath.html

Code of ethics for nurses with interpretive statements. (2010). Retrieved from http://www.nursingworld.org/MainMenuCategories/EthicsStandards/CodeofEthicsforNurses/Code-of-Ethics.pdf

Dorrian, J., Lamond, N., Van den Heuvel, C., Pincombe, J., Rogers, A. E., & Dawson, D. (2006). A pilot study of the safety implications of Australian nurses' sleep and work hours. *Chronobiology International, 23*(6), 1149-1163. http://dx.doi.org/10.1080/07420520601059615

Florence Nightingale Pledge. (2014). http://www.nursingworld.org/FunctionalMenuCategories/AboutANA/WhereWeComeFrom/FlorenceNightingalePledge.aspx

Institute of Medicine. (2004). *Keeping patients safe: Transforming the work environment of nurses*. Washington, DC: National Academy of Sciences.

Keller, S. M. (2009). Effects of extended work shifts and shift work on patient safety, productivity, and employee health. *American Association of Occupational Health Nurses*, *57*(12), 497-502. doi:10.3928/08910162-20091116-01

Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (Eds.). (2000). *To Err is Human: Building a Safer Health System*. Washington D.C.: National Academy Press.

Niu, S., Chu, H., Chen, C., Chung, M., Chang, Y., Liao, Y., & Chou, K. (2012). A comparison of the effects of fixed- and rotating- shift schedules on nursing staff attention levels: A randomized trial. *Biological Research in Nursing*, *15*(4), 443-450. http://dx.doi.org/10.1177/1099800412445907

Niu, S., Chung, M., Chen, C., Hegney, D., O'Brien, A., & Chou, K. (2011). The effect of shift rotation on employee cortisol profile, sleep quality, fatigue, and attention level: A systematic review. *Journal of Nursing Research*, *19*(1), 68-80. doi:10.1097/JNR.0b013e31820c1879

Peate, I. (2007). Strategies for coping with shift work. *Nursing Standard*, *22*(4), 42-45. Retrieved from www.nursing-standard.co.uk

Pipe, T. B., & Bortz, J. J. (2009). Mindful leadership as healing practice: Nurturing self to serve others. *International Journal for Human Caring*, *13*, 35-39. http://dx.doi.org/10.1097/NNA.0b013e31819894a0

Quansah, R., & Jaakkola, J. J. (2010). Occupational exposures and adverse pregnancy outcomes among nurses: A systematic review and meta-analysis. *Journal of Women's Health*, *19*(10), 1851-1862. http://dx.doi.org/10.1089/jwh.2009.1876

Reed, K. (2013). Promoting healthy work hours for nurses. *Nursing 2013*, 64-65. http://dx.doi.org/10.1097/01.NURSE.0000422658.39909.37

Schernhammer, E. S., Razavi, P., Li, T. Y., Qureshi, A. A., & Han, J. (2011). Rotating night shifts and risk of skin cancer in the nurses' health study. *Journal of the National Cancer Institute*, *103*(7), 602-606. http://dx.doi.org/10.1093/jnci/djr044

Scott, L. D., Hwang, W., Rogers, A. E., Nysse, T., Dean, G. E., & Dinges, D. F. (2007). The relationship between nurse work schedules, sleep duration, and drowsy driving. *Sleep*, *30*, 1801-1807. Retrieved from www.ncbi.nlm.nih.gov.ezprozy.augsburg.edu/pmc/articles/PMC2276124

Self-care Academy. (2013). http://self-careacademy.com/sca/compassion-fatigue/

Swift, A. (2013). Honesty and ethics rating of clergy slides to new low: Nurses top list; lobbyists are worst. Retrieved from http://www.gallup.com/poll/166298/honesty-ethics-rating-clergy-slides-new-low.aspx

To err is human: Building a safer health system. (1999). Retrieved from www.iom.edu/~/media/Files/Report%20Files/1999/To-Err-is-Human

U.S. Department of Health and Human Services. (1997). http://www.cdc.gov/niosh/docs/97-145/pdfs/97-145.pdf

Watson, J. (2002). Nursing: Seeking its source and survival. *ICUs and Nursing Web Journal*, *9*, 1-7. Retrieved from http://watsoncaringscience.org/files/PDF/WatsonICU02.pdf

Watson, J. (2008). *Nursing: The philosophy and science of caring*. Boulder, CO: University Press of Colorado.

Watson, J. (2012). *Human caring science: A theory of nursing* (2nd ed.). Sudbury, MA: Jones and Bartlett Learning.

Watson, J., & Foster, R. (2003). The attending nurse caring model: Integrating theory, evidence and advanced caring-healing therapeutics for transforming professional practice. *Journal of Clinical Nursing*, *12*, 360-365.

Zhao, I., Bogossian, F., & Turner, C. (2010). Shift work and work related injuries among health care workers: A systemic review. *Australian Journal of Advanced Nursing*, *27*(3), 62-74. Retrieved from http://ezproxy.augsburg.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=49240735&site=ehost-live

Zhoa, I., Bogossian, F., & Turner, C. (2012). A cross-sectional analysis of the association between night-only or rotating shift work and overweight/obesity among female nurses and midwives. *Journal of Occupational and Environmental Medicine*, *54*(7), 834-840. http://dx.doi.org/10.1097/JOM.0b013e31824e1058

Appendix A

Scheduling Agreement for Multidisciplinary Unit

Sample 1

Nurse A and nurse B have agreed to a scheduling agreement whereby nurse A will work straight 12-hour night shifts and nurse B will work straight 12-hour day shifts. Both employees work 36 hours per week and work the same weekend.

This scheduling agreement will start with the work schedule that begins _____

For situations where there is scheduled orientation for either RN or if one of the RNs goes on a leave of absence that extends beyond 2 weeks, they may need to adjust the straight shift schedule to assist with meeting the unit schedule needs.

_____ Date: _____

Nurse A signature

_____ Date: _____

Nurse B signature

_____ Date: _____

Nurse manager signature

Scheduling Agreement for Multidisciplinary Unit

Sample 2

Nurse A and nurse B will initiate a scheduling agreement starting _____ whereby nurse A will work straight 12-hour night shifts and nurse B will work straight 12-hour day shifts. Both nurse A and nurse B work 36 hours per week and the same weekend on the multidisciplinary unit.

This agreement will remain in effect until either individual determines that he or she no longer wishes to maintain the agreement or if either should accept a different position within the work unit. Should either individual need to be on a leave of absence that extends beyond 8 weeks, there may be a need to resume rotational schedules for the duration of the time that the individual remains on leave.

Signatures:

Nurse A

_____

Date: _____

Nurse B

_____

Date: _____

Appendix B

Scheduling Supervisor Questionnaire

1. Are you aware of the evidence-based research that shows the safety risks associated with rotating shifts?

2. Why are staff nurses not actively involved in the development of schedules for there to be a better understanding of the effects of rotating shifts?

3. When scheduling resource representatives are orientated to the job, are they given any education related to how shift rotations pose a safety risk?

4. Has there ever been any thought to having schedulers work rotating shifts to have a better understanding of the effects of rotating shifts?

5. Do schedulers follow any guidelines related to how 12-hour shifts can be rotated in a 4-week period or how many days off should be allowed between rotations?

6. Why are there no straight 12-hour day or night positions?

7. What was the intention behind the development of the current base schedule?

8. Other hospitals use 4- or 6-week block scheduling without deviation; could this be implemented here? Why or why not?

Appendix C

Staff Satisfaction Pre-Questionnaire

1. Are you satisfied with the current rotating schedule pattern on our unit?
   Yes___ No____ Please explain

2. Does the current rotating schedule pattern allow you sufficient recovery time between rotating shifts? Yes____ No_____ Please explain

3. If the unit could support a schedule pattern of 3 week block schedules rotating between 12-hour days and nights, do you feel it this would be a positive change?

4. Does your current shift rotation impact your work/life balance? Yes____ No____ Please explain

5. If you could choose an optimal schedule pattern that meets the unit's needs as well as your personal needs, what would it be?

6. Are there any interventions or self-care practices you utilize personally to help you manage the effects of rotating shift work?

Appendix D

Current Schedule

April 9, 2014 – May 6, 2014

Name	FTE	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU
Nurse 1	.80		D		D	D		D	D	D	E																		
Nurse 2	.90	D	D	D				D	E		E	E	E		D	D	D						D	E	E				
Nurse 3	.90		A				A	A		A				A	A			M	M	M			A	A					A
Nurse 4	.75			A	A	A			M	M								A	A	A			A	M					
Nurse 5	.60	M					M	M			M					A									M	M	M		
Nurse 6	.90			M	M	M				A				M	M		M				A	A						A	A
Nurse 7	.90	A	A				A				A	A	A				M	A	A			A				A	A			
Nurse 8	.90		M	M			M						M	M		M						M	M					M	M

FTE: Full time equivalent

D: 8 hour shift starting at 0700

E: 8 hour shift starting at 1500

A: 12 hour shift starting at 0700

M: 12 hour shift starting at 1900

May 7, 2014 – June 3, 2014

Name FTE	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU
Nurse 1 .80	E		E	E	E		D	D	D																			
Nurse 2 .90	D	D				D	D	D	D																			
Nurse 3 .90	M					M	M				A	A	A				M	M										
Nurse 4 .75						M	M				M	M	M			A	A											
Nurse 5 .60	M	M					A			A					A	A			A	A								
Nurse 6 .90				A	A	A		M	M						M		M	M	M	M								
Nurse 7 .90	A	A	A					A	A					A							A	A						
Nurse 8 .90			M	M	M			M		M				M							M	M						

FTE: Full time equivalent

D: 8 hour shift starting at 0700

E: 8 hour shift starting at 1500

A: 12 hour shift starting at 0700

M: 12 hour shift starting at 1900

Appendix E

Proposed New Master Schedule

First 4 Week Pattern

Name	FTE	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU
Nurse 1	.90			M	M	M			M	M																			
Nurse 2	.75			A	A	A																							
Nurse 3	.90			A	A	A			A	A																			
Nurse 4	.60			M	M	M				M	A					A	A												
Nurse 5	.90	M					M	M			A	M	M	A	A			A	A										
Nurse 6	.60						M		M	M	M	M	M			M	M												
Nurse 7	.90	A					A	A	M	M	M	M	M			M	M												
Nurse 8	.75		A				A	A	A	A	A	A	A			A	A												
Nurse 9	.90	A	A				A	A						A	A			A	A	A									
Nurse 10	.90	A	A				A		M	M	M	M	M	M	M			M	M	M									
Nurse 11	.60		M				M							A	A			A	A	A									
Nurse 12	.90	M	M				M	M						M	M			M	M	M									

FTE: Full time equivalent **A:** 12 hour shift starting at 0700

M: 12 hour shift starting at 1900

Second 4 Week Pattern

Name	FTE	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA	SU	MO	TU
Nurse 1	.90	A	A				A		A	A													M	M					
Nurse 2	.75		M				M	M		M						A	A												
Nurse 3	.90	M	M					M	M							A	A												
Nurse 4	.60		A					A								M	M												
Nurse 5	.90			M	M	M			M	M						M	M												
Nurse 6	.60			A	A	A					A																		
Nurse 7	.90			A	A	A				A																			
Nurse 8	.75			M	M	M																							
Nurse 9	.90	A					A	A																					
Nurse 10	.90		A				A	A																					
Nurse 11	.60		M																										
Nurse 12	.90	M						M	M																				

FTE: Full time equivalent **A:** 12 hour shift starting at 0700

M: 12 hour shift starting at 1900

Appendix F

Staff Satisfaction Post-Survey

1. Are you satisfied with the current rotating schedule pattern on the unit?
   Yes___ No____ Please explain

2. Does the current rotating schedule pattern allow you sufficient recovery time between rotating shifts? Yes____ No_____ Please explain

3. Do you feel the creation of a schedule pattern of 3-week block schedules rotating between 12-hour days and nights was a positive change?

4. How has the current shift rotation impacted your work/life balance?

5. Are there any changes you would make to improve the current schedule?
   Yes___ No___ What changes would you make?