An Exploration of Nurse Manager Work Activities in an Acute Care Setting

By

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Dissertation

Submitted to the Faculty of the

Graduate School of Vanderbilt University

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

in

Nursing Science

May, 2016

Nashville, Tennessee

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DEDICATION

This doctorate is dedicated to my family. Thank you mom and dad for always encouraging me to follow my dreams and for always believing in me. Thank you mom for supporting me as I followed in your footsteps and became a nurse too. I remember your school days, the pinnings, and your graduations like they were yesterday. I love that we have nursing in common. Thank you dad for asking about the program and how I was doing. It meant more than you know. Thank you to my sister for cheering me on and supporting me on this journey.

Thank you to my love, my best friend, and my biggest supporter, my husband Larry. Thank you for all the heavy lifting during the program. From the beginning I have known and felt your unwavering encouragement and enthusiasm. Thank you for all the pep talks and for encouraging me to stick with it during the most challenging of times. Thank you for always listening and for taking a most genuine interest in each class and my phenomenon of interest.

Larry—thank you for a beautiful wedding, for looking after me during two pregnancies, and celebrating the births of our two daughters, Eleanor Elizabeth and Olivia Kathryn. Ellie and Livy—you bring so much joy to mommy and daddy, we are so proud to be your parents and love you so much. I am sorry for all the family time I have missed and I promise to make it up to each of you. Here is to a future that is all ours, that is bright, and filled with happiness. I look forward to making new memories each day.

ACKNOWLEDGEMENTS

I am grateful for having had the opportunity to achieve one of my career goals at Vanderbilt University. The journey was both transformative and enjoyable. I wish to extend a most heartfelt thank you to my advisor and committee chair, Dr Ann Minnick for the countless hours of instruction and guidance, and for showing patience with me. I would also like to thank my committee members, Dr Mary Dietrich, Dr Peter Beurhaus, and Dr Christine Kovner. I have learned a tremendous amount from each of you. Thank you for your guidance and patience.

I would not have been able to begin this doctorate without the time and counsel from all those who talked me through the application process or offered a letter of recommendation (Dr Susan Lee, Dr Mary Jane Costa, Dr Joyce Clifford, Dr Diana Mason). Also, I would not have been successful without the encouragement and support of my various employers during the program. Without their understanding and flexibility, it just would not have happened. Thank you to Theresa Gallivan, Dr Jeanette Ives Erickson, Susan Gergely, and Pamela Thompson.

Thank you to my family, friends, and work colleagues for sharing in the journey.

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CHAPTER I

INTRODUCTION

The purpose of this dissertation was to describe the work activities of the nurse manager in the acute care setting. The nurse manager has been described as one of the most important assets to hospital success (Aroian 1997) and is believed to be critical to inpatient unit operations. The nurse manager has responsibilities that include the oversight of high-quality patient care, staff scheduling, safety, efficiency, innovation, staff satisfaction, as well as achievement of organizational, regulatory, and financial goals (Hill, 2004).

Statement of the problem

Little information is known about the work activities of the nurse manager in the acute care setting. Few studies exist about nurse manager work activities, and they are methodologically flawed. There is evidence about the nurse manager's relationship to patient and staff outcomes, but detailed description about how this specific relationship exists is not understood. To understand how a nurse manager may influence patient and staff outcomes it is important to first understand how the nurse manager performs his or her work through activities. Without such a description of the nurse manager work activities, further research examining the impact of the nurse manager on patient and staff outcomes is delayed.

The Nurse Manager

Evidence of the term "Head Nurse," a precursor to "nurse manager," dates back to the late 1800s and is described in a letter penned to Florence Nightingale in an article entitled, "History of the Reform in Nursing at Bellevue Hospital" (Dock, 1901). The term remained popular for decades and in the late twentieth century the term "nurse manager" displaced "head nurse" in usage and popularity. A more recent history of the nurse manager role may be understood with three distinct time periods (Shirey, 2006):

- Pre re-engineering period (1980-1991) — traditional head nurse
- Intra re-engineering period (1992-1999) — expanded nurse manager role (early)
- Post re-engineering period (2000-2003) — expanded nurse manager role (late)

The pre re-engineering role focused on task orientation, the next phase centered on the transition from the traditional head nurse to the nurse manager role, and the final phase, the post re-engineering phase, investigated the complexity of the nurse manager role (Shirey, 2006).

In the 1980s, the Commonwealth Fund commissioned a study about the nursing shortage. The study focused on the nurse workforce from a variety of differing perspectives, including from that of the nurse manager. No longer referred to as the "head nurse," the paper called for the increased sophistication of the nurse manager role to include more independence over resource allocation and finances, including accountability for quality and costs (Roberts, Minnick, & Ginzberg et al, 1989).

Today's nurse manager is key to the operation of an effective nursing unit, and is faced with continuous change and increased responsibility with ever-expanding scope (Kleinman, 2003). Nurse manager responsibilities include the oversight of patient care, safety, efficiency, innovation, staff satisfaction, as well as achievement of organizational, regulatory, and financial goals (Hill, 2004). Nurse manager proficiency is required in safety metrics, productivity and quality, as well as in support of ongoing clinical development to ensure safe, efficient, and effective patient care (Cathcart, 2008). Nurse managers also play a key role in shaping the health care work environment and in serving as a role model for staff (Shirey, 2006).

Nurse managers report working 12 to 14 hours per day and have 24-hour accountability for their nursing units (Rudan, 2002). According to a 2002 survey by the American Organization of Nurse Executives (AONE), nurse managers in the acute care setting may oversee 16 to 54 employees in various sized facilities and Cathcart, Jeska, Karnas and colleagues (2004) report nurse manager span of control may exceed 100 employees.

Many researchers have demonstrated a relationship between the nurse manager and patient outcomes (Boyle, 2004; Pollack and Koch, 2003; Doran, McCutcheon, & Evans, et al 2004; McNeese-Smith, 1999; Houser, 2003). For example, a 2004 study (Boyle, 2004), examined data on 11,496 discharged patients and a work environment survey completed by 390 nurses. Findings from this study revealed that high nurse manager support was inversely correlated with pressure ulcer and death rates. In addition, high nurse manager support revealed lower rates for falls, cardiac arrest, pneumonia, and failure to rescue when compared to low nurse manager support. Similarly, Pollack and Koch (2003) reported higher scores on

organizational processes and managerial practices led to lower mortality. The role of the nurse manager has also demonstrated to positively influence patient satisfaction (Doran, McCutcheon, & Evans, et al 2004; McNeese-Smith, 1999), reduce patient mortality, decrease patient falls, medication errors, and hospital infections (Houser, 2003). Despite these research findings, we do not know the exact activities performed by the nurse manager that constitute staff nurse perceived nurse manager support or the improvement of patient outcomes.

In addition to influencing patient outcomes, nurse managers exert a strong impact on the work environment and impact numerous staff outcomes such as staff stability, job satisfaction (Larrabee, Janney, & Ostrow, et al 2003; Laschinger and Leiter, 2006; McGillis-Hall and Doran, 2007; McNeese-Smith, 1999), organizational commitment (Laschinger and Leiter, 2006; McNeese-Smith, 1999; McNeese-Smith & Yang, 2000), turnover (Houser, 2003), job stress (Meyer-Bratt, Broome, & Kelber, et al, 2000), emotional exhaustion (Laschinger & Leiter, 2006), nurse/physician teamwork (Cummings, 2004;Laschinger & Leiter, 2006), and productivity (McNeese-Smith, 1999), among others. What is unresolved is if nurse manager activities or combinations of activities are required to achieve these outcomes.

Purpose of the study

The nurse manager performs hundreds of activities each day, including oversight of nurse staffing. More recent studies (Arman, Dellve, Wikstrom & Tornstrom, 2009; Shirey, Ebright, &McDaniel, 2008) explore additional types of activities performed by the nurse manager. Both have small samples (n = 5 and 3) and one took place outside of the United

States, limiting the generalizability of their results. Given the nurse manager's association with patient and staff outcomes outlined in the aforementioned studies, it is plausible that there is an association between nurse manager work activities and patient and staff outcomes. Further, if there is a relationship, we need to know the specific nurse manager activities that strengthen the relationship. This dissertation sought to explore the work activities of the nurse manager, because description of nurse manager work activities are lacking in recent literature. Without such a description of the nurse manager's work activities, further research examining the impact of the work activities on patient and staff outcomes is delayed.

Research Aims

The aims for the dissertation were:

1. To identify the work activities performed by the nurse manager, where the activities are performed, and with whom the nurse manager interacts when performing the activities.
2. To determine whether there is a relationship between observed nurse manager activities and self-reported nurse manager activities.

CHAPTER II

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Chapter II describes The Outcomes Production Model, a theoretical framework to organize nurse manager work activity and its impact on the patient experience and outcomes; a critical analysis of the relevant literature; and operational definitions of all of the variables in the research questions.

Theoretical Framework

The Outcomes Production Model

Conceptual models are important for the guidance of research as they frame what is believed to be the contributors of an outcome by identifying critical pathways, pertinent factors and variables, and the relationship between variables and outcomes of interest (Kane & Radosevich, 2011). There are no explicit theoretical or conceptual models that explain the association between nurse manager work activity and patient outcomes, such as 30-day hospital readmissions. However, the existing Outcomes Production Model provides a close fit (Minnick, Roberts, Young, Kleinpell & Marcantonio, 1997). First developed in 1991, the Outcomes Production Model is a health services framework used to study variables' influence on patient outcomes (Figure 1). This framework was used in a study to describe inter- and intra-institutional variation in labor, capital, and care delivery process variables on outcomes

(Minnick, Roberts, Young, Kleinpell & Marcantonio, 1997). The framework was also used in a study that examined employee behaviors and attitudes, as well as the patient experience and patient characteristics (Minnick, Fogg, & Mion, et al, 2007), and several dissertations (Widmar, 2012; Fischer 2010; Barnett, 2012). The framework is high-level and unspecific, and may be applicable to a number of studies. The model is complex with nine variables, and is logical in flow. The direction of relationships among the variables is clearly illustrated with arrows. Figure 2 illustrates an adaptation to the Outcomes Production Model for the purpose of this dissertation. The addition of nurse manager labor is explicitly stated in the labor variable.

Figure 1. The Outcomes Production Model

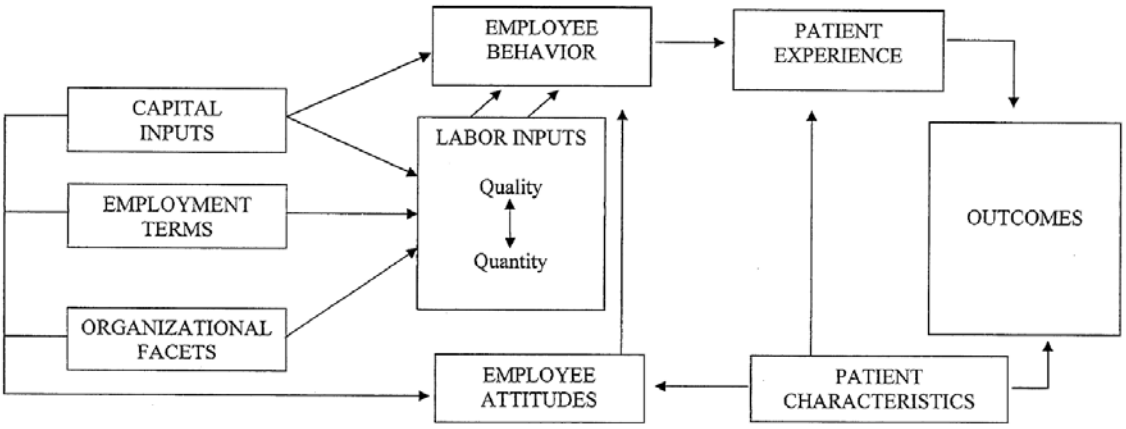
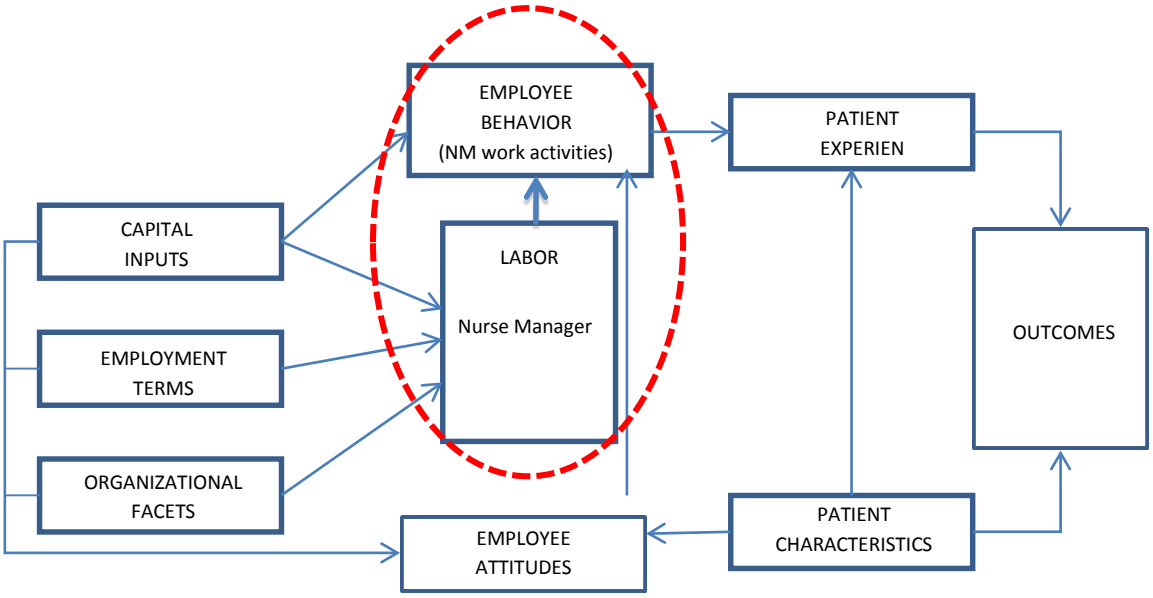


Figure 2. The Outcomes Production Model- II



Critical Analysis of the Relevant Literature

Manager Activity from the Business Literature

Research studies examining the work activities of the middle manager are abundant and date back to the 1950s. The studies are diverse in population, locations, and methods and often draw on the earlier works of well-known managerial researchers such as Mintzberg, Stewart, Fayol, and Kotter. This research spans many industries including health care,

insurance, finance, manufacturing, retail, government, and service industries, among others. Stewart (1976) defines a manager as "anyone above a certain level, roughly above a foreman… whether in control of staff or not." In many of the reviewed studies, the definition of managerial work incorporated the activities managers perform. For example, Van der Velde and colleagues (1999) used the following categories to classify managerial activity: exchanging information and paperwork (communicating), planning, decision making, monitoring/controlling and developing ideas (traditional management), socializing, interacting with outsiders (networking behavior), and motivating people, disciplining, managing conflict, staffing and training/developing (human resources management). Other researchers included additional aspects of the activity, such as with whom the activity occurs and recording the person whom initiated the activity (subject, mutual, opposite party, clock, unknown) (Martinko & Gardner 1990).

Of the managerial studies reviewed, the study designs were exclusively descriptive and exploratory, and the methods for data collection and tools used to measure manager activity were described as: questionnaire (Van Der Velde, Janse, & Vinkenburg 1999; Hales 1999; Konrad, Kashlak, Yoshioka, Waryszak, & Toren 2001; Hamlin 2002; O'Driscol, Humphries & Larsen 1991), direct observation (Martinko & Gardner 1990; Hales 1999), critical incident technique (Hamlin 2002), self-recorded diaries (Stweart 1976), participant observation (Fletcher 1973), activity sampling (Kelly 1964), intensive observation or shadowing (Mintzberg 1973), interviews (Kotter 1982; Nicholas and Beynon 1977).

Staff Nurse Work Activity

The staff nurse activity literature, like the managerial literature, is useful in providing valuable information on study design, methods and instrumentation.

Design

Studies that examine staff nurse work activity, are descriptive. Time is an important element of descriptive research and studies may be classified as cross-sectional and longitudinal. Cross-sectional designs capture a single moment in time whereas longitudinal studies have at least two measures over time. Longitudinal research studies are further separated into repeated measures (those studies that have at least two or more waves of measurement) (Lundgren & Segesten, 2001) and time series (studies with more than 20 waves of measurement over time). Studies that used time series design include (Gillan 1951; Gillan and Tibbits, 1952; Abdellah, 1954; Schrubel & Minnick, 1994; Quist, 1992; Hendrickson, Doddato, & Kovner, 1990; Upenieks 1998; Hendrich, Chow, & Skierczynski, et al, 2008; Ballerman, Shaw, & Mayes et al, 2011; Westbrook & Ampt 2009; Westbrook, Duffield, Roche, & Blay et al, 2011; Arman, Dellve, & Wickstrom et al, 2009). Data from these studies are often used to learn more about the subject of study and to inform the designs of future studies.

Multiple methods of data collections have been used to study staff nurse work activity and include observation, interviews, and self-report.

Observation and Work-Sampling

As a data collection method, observation is versatile and frequently used to study work activity. According to Polit and Hungler (1999), "Observational methods have an intrinsic appeal with respect to their ability to capture a record of behaviors and events directly" (p. 313).

Challenges to observation include the hope that people behave naturally, confidentiality and anonymity protection, and minimizing the impact of study participants (O'Leary, 2005). Despite the desire for people to behave naturally, some participants change their behavior as a result of being observed, also known as the "Hawthorne effect." In their study investigating the impact of an electronic record on nurse and physician work activity, Westbrook and Ampt (2009) used an observer to track activity and detail attempts to mitigate the Hawthorne effect. One mitigation tactic was to perform extensive training of the observers on the inpatient units to allow the nurses to become familiar with the observer presence and the methods for data collection. The researchers concluded that because data collection took place over seven months, it was unlikely the subjects were able to alter their behavior for that extended period of time.

Lundgren and Segesten (2001) used non-participant observation in a study to describe how the allocation of nursing time changed, if at all, after the change to an all-RN staff. The observer in this study followed the nurse like a "shadow" and continuously recorded notes. The notes included the time the nurse started a new activity along with a description of the activity. In this study, one nurse per day was observed for ten days (Monday through Friday).

In addition to highlighting the observation method here, the researchers claimed a benefit to an observation study participant may be that the subject is moved to self-reflect as a result of her work being observed (Bloomer, Cross, & Endacott et al, 2012). After mention of this potential benefit of self-reflection, it is pertinent to note that there is no risk of physical harm to the subject when being observed.

Work sampling, a method in which the observation times are selected ahead of time — systematically or randomly (e.g. every 1-minute at 5-minute intervals, or 1-minute periods 12 times per hour), has been used by researchers to assess nursing time allocation and task distribution (Upeneiks, 1998), to determine the effects of the introduction of technology and human resource innovations on the amount of time nurses spend in direct care activities (Schrubel & Minnick, 1994), and to study time allocation of staff nurse work activity (Hendrickson, Doddato, & Kovner, 1990).

Advantages of work sampling include the ability to collect large numbers of data points, and independent observervation rather than self-report. Disadvantages to work sampling include the need for large sample sizes, leading to higher costs resulting from the need for additional time and personnel. Another disadvantage is the observation nature of work sampling, which may lead the subject to act differently (Schrubel & Minnick, 1994).

Self-report may be an advantageous method to collect work activity because the researcher's observations are limited to participant actions during observation. Self-report questions people directly; its advantages include directness and versatility (Polit & Hungler, 1999). The use of self-report allows for retrospective data collection by having the participant

recall from the past and make projections about the future (Polit & Hungler, 1999). In addition to versatile content coverage, low cost is another advantage of self-report as no data collector is required. The most crucial disadvantages to self-report are validity and accuracy: the researcher must assume the participant is telling the truth. Participants tend to show themselves in a positive light, which may deviate from the truth (Polit & Hungler, 1999). Self-report is also used when a timer or computer program cues the study participant to record a data point. But, a disadvantage to self-report in these instances is the potential for the subject to become distracted or unresponsive to a reminder device, resulting in incomplete data. Use of an observer significantly reduces concerns about incomplete data (Ampt, Westbrook, Creswick, & Mallock, 2007). Self-report was used in a study that compared observed activities and staff nurse, self-reported activities. Analysis of these data revealed high agreement (Westbrook & Ampt, 2009).

Multiple instruments have been used to collect work activity data of staff nurses: WOMBAT, structured observation tool, personal digital assistant, field notes and video recording.

WOMBAT (Work Observational Method By Activity Timing) software

Multiple studies discuss the use of a PDA loaded with WOMBAT (Work Observational Method By Activity Timing) software (Westbrook & Ampt, 2009; Westbrook, Duffield, et al, 2011; Ballerman, Shaw, Mayes, et al, 2011; Westbrook, Duffield, & Creswick, 2011). This instrument is described by Westbrook, Duffield, and Creswick (2011) as “a multi-dimensional

work task classification system incorporated into a handheld computer (personal digital assistant – PDA)." With this tool, data are collected in 10 broad, mutually exclusive categories: direct care, indirect care, medication task, documentation, professional communication, ward related activities, in transit, supervision, social, other (Westbrook, Duffield, & Creswick, 2011). WOMBAT is a valid and reliable method for the collection of complex, multi-dimensional data about work activity and communication patterns of clinicians in a variety of health care settings (Westbrook & Ampt, 2009; Ballerman, Shaw, Mayes et al, 2011). High agreement between nurse ranking of their activities and the PDA observations make the researchers confident in the validity of the instrument (Westbrook & Ampt, 2009).

Advantages to the WOMBAT software and data collection method include: 1) its low cost, 2) time efficiency, and 3) directly downloaded data, which reduces the likelihood of transcription error. Further, complex work activity such as multitasking and interruptions can be captured. In one study, the WOMBAT data proved to be extensive and captured 99% of activities, resulting in a low 1% "other" classification. This method is robust for multiple clinical groups including nurses, physicians and ward clerks (Westbrook & Ampt, 2009).

According to Westbrook and Ampt (2009), this method is better than a paper tool to collect work activity and communications. The WOMBAT PDA allows for the collection of more data points because entries are already time-stamped, eliminating time entry by the observer. Collecting multi-tasking activities and interruptions is easy; the task is difficult with a paper method. The authors compared their WOMBAT methods to a similar study using paper, and calculated the paper tool would have missed 10% of the nurses' task time.

Disadvantages to the WOMBAT PDA are few, but include an inability to capture context. In order to overcome this weakness, field notes are needed. Westbrook and Ampt (2009) use field notes to capture contextual issues such as the ward staffing, the presence of students, and general workload. Other researchers have used field notes and audio recordings. The WOMBAT method requires time to train the observers how to use the technology. Adequate time and practice should be allotted at the beginning of the study.

Structured Observation tool (Paper and pencil)

According to Polit and Hungler (1999) a common approach used in structured observation of activities and behaviors is by creating a category system. Structured category systems are designed to reduce observer subjectivity. "A category system represents an attempt to designate in a systematic or quantitative fashion the qualitative behaviors and events transpiring with the observational setting (p.371)." Recording activities for long periods of time is laborious. "Observation and interpretation are demanding tasks, requiring attention, sensation, perception, and conception (p.378)."

Standardized observation forms, or work sampling check sheets, are common in research studies that examine work activity (Abdellah, 1954; Upenieks, 1998; Hendrickson, Doddato, & Kovner, 1990). These forms are not often described in detail, however one study made note of the activity categories on the form as: with patient, patient chart, preparation of therapies, shift change activities, professional interaction, miscellaneous – clinical, checking

physician's orders, unit-oriented inservice, paperwork, phone communications, supplies, miscellaneous – non-clinical, and don't know (Hendrickson, Doddato, & Kovner, 1990).

Personal Digital Assistant (PDA) and software

A personal digital assistant (PDA), not fitted with WOMBAT software, was used in a time and motion study to document how and where nurses spent their time (Hendrich, Chow, & Skierczynski, et al, 2008). The goal of the study was to identify inefficiencies in nursing work processes and design. This study differed from the WOMBAT studies in that a nurse, instead of an observer, responded to the PDA when prompted. The device was programmed to alarm (vibrate) 25 times in 13 hours. When cued, the nurse entered her location and work activity. To ensure the nurse would not ignore the alarm, the PDA continued to vibrate every 15 seconds until answered. Using this method, data were collected 24 hours per day for seven days. Disadvantages to this technology-assisted method of self-report include validity in the self-report, and disruption to nurse activity and patient care when responding to an alarming device.

Field Notes

Field notes are also used to track nurses' work activities defined as "notes taken by researchers describing the unstructured observations they have made in the field, and their interpretation of those observations" (Polit & Hongler, 1999, p.702). For example, field notes

were used to provide context to the WOMBAT data that were collected (Westbrook & Ampt, 2009; Ballerman, Shaw, Mayes, et al, 2011). Field notes included such data as nurse staffing, the presence of students on the unit, as well as nurses' workloads.

Video Recording

The use of video recording has been proposed, but transcription and coding of the recording would be very laborious, achieving inter-rater reliability would be difficult, and sample sizes would be small (Westbrook & Ampt, 2009).

Of note, these examples describe staff nurse work activity studies. It is unlikely that differences would exist if the nurse manager were the subject.

Nurse Manager Work Activity

Research of nurse manager work activity dates back to the 1950s. Those early studies sought to answer questions related to how much time the "head nurse" spent carrying out an activity and how often the head nurse was interrupted (Gillan, 1951; Gillan & Tibbits, 1952). The outcomes of more recent research studies are presented here; an in-depth discussion of methods is presented in Chapter III. One study, performed in Sweden in 2009, explored the role of the first- and second-line health care manager's work activity and use of time (Arman, Dellve, Wikstrom & Tornstrom, 2009). Data collection included structured and unstructured observations of activities over a 3.5-4 day period. Of the 10 health care managers studied, three were nurse managers. The number of observed activities ranged from 89 to 444 with a mean of 245. Findings from this study revealed that health care managers spend 25 percent of

their time in activities of short duration (< 9 minutes). Activities performed included meetings, deskwork, telephone calls, tours, transportation, clinical work, breaks, and private. The greatest amount of time (59%) was spent in meetings (scheduled 40%; unscheduled 19%) followed by deskwork (30%). Most of the health care manager's interactions were with subordinates (44%), followed by peers (32%), client (17%), and independently (7%). Thirty-one percent of activities occurred in the manager's office, followed by "away from the organization" (26%).

In another study, five nurse managers participated in 1.5-2 hour-long, semi-structured, individual interviews to understand the events and experiences of nurse managers in an acute care hospital setting. The participating nurse managers described their role as one of a "clearing house," or disseminator and gatherer of information. One nurse manager reported spending 25 percent of her time doing what she felt was her work, while 75 percent of the time doing "other things" or "invisible work." Three of the managers reported attending multiple meetings as a major challenge. Some of the nurse managers described taking time to "put out fires," "nip problems in the bud," and "assess the temperature on the unit." The study also explored concepts not germane to this qualifying dissertation: stresses of the role, conflicts on what is valued in the role, and coping strategies (Shirey, Ebright, & McDaniel, 2008).

Another study was designed to examine the nurse managers' perceptions of: the frequency of performing key responsibilities, level of importance of those responsibilities, and level of expertise in meeting these expectations (Baker, Marshburn, Crickmore, Rose, Dutton, & Hudson, 2012). The study used an electronic survey distributed via electronic mail and achieved a response rate of 76 percent (N=29). Findings revealed that nurse managers

perceived to spend most time performing review and analysis of financial reports, attending meetings and councils, ensuring regulatory compliance, and process improvement planning. Further, the nurse managers reported the most important responsibilities included: rounding on the unit with patients and staff, addressing patient satisfaction issues, reviewing schedules, monitoring and flexing staff to volume, and dealing with staffing issues.

Lin and colleagues (2005) used a survey to examine nurse manager activities and skills in Taiwan. The study achieved a 33.9 percent response rate (N=382) and examined nurse managers at three different levels (top managers, middle managers, and supervisory managers). Findings from the study revealed that managers from each level agreed that the five most important activities performed by managers were nursing quality management, job planning and assignment, goal setting, job monitoring and control, and nurse training. The five least important management activities were setting nursing system policy and goals, implementing doctor's orders, purchasing order and control, interacting with internal and external entities, and recruiting.

Variable Definition

Activity is defined by the Merriam-Webster dictionary as something that is done as work or for a particular purpose.

Numerous examples of nurse manager definitions appear in the literature. A sample of those definitions is listed in Table 1. Of the sample definitions, three are simple and focus on

the nurse manager title as role defining (Skorga & Taunton, 1989; Persson & Thylefors, 1999; Shirey, 2008); two definitions include scope (Shirey, 2008; Mark, 1994); five of the definitions refer to the responsibility and authority of the role (Gribbons & Marshall, 1984; Shirey, 2008; Cooper, Manning, & Poteet, 1988; Persson & Thylefors, 1999; Mark, 1994). For the purpose of this study, a nurse manager was defined as "a registered nurse holding the title of nurse manager in an acute care hospital and having 24-hour accountability of at least one department" (Shirey, Ebright & McDaniel, 2008).

Table 1. Nurse Manager Definitions

Source	Definition
Gribbons & Marshall (1984)	Defined broadly as nurses who exercised line of functional authority over staff
Cooper et al (1988)	Nurses assuming managerial responsibilities in practice settings and at schools of nursing
Skorga & Taunton (1989)	No additional definition other than position title
Persson & Thylefors (1999)	The ward manager title was defined as an expanded practice role including full executive status and the broad scope of duties inclusive of nursing practice oversight, staffing, budgeting, and organizational development
Shirey (2008)	A registered nurse holding the title of nurse manager in an acute care hospital and having 24-hour accountability of at least one department
Mark (1994)	The individual with 24-hour responsibility for the management of one or two units.
Duffield (1991)	It is the first level of management, the closest to the staff nurses and the patients.

CHAPTER III

METHODOLOGY

Overview

Chapter III includes a description of the study design, methods, setting, sample, instruments, and procedures. This study used a cross-sectional descriptive research design to explore the work activities performed by nurse managers, where the activities took place, and with whom the activities occurred. The study also examined the relationship between observed and self-reported activities. Observation data were collected with a structured observation tool, and interview was used to gather descriptive data about the nurse manager and the inpatient nursing unit. Additionally, self-report was used to collect the nurse manager's perception of the percentage of time they spent in each activity category.

Setting

The settings of this study were eight, adult, non-ICU nursing units in two major academic medical institutions located in the Midwest, United States. The nurse manager subjects of this study described their units as general medicine, general surgical, oncology, orthopedic, hematology/oncology, and general care unit. Adult, non-ICU, non-pediatric units

were selected as it was thought the nature of the work activities would be similar on a general care unit.

Academic Medical Center A

Academic medical center A is described as a large general medical and surgical, not-for-profit hospital (staffed beds = more than 500; more than 30,000 admissions in 2014).

Academic Medical Center B

Academic medical center B is described as a large general medical and surgical, not-for-profit hospital (licensed beds = more than 1,000; more than 55,000 admissions in 2014).

Table 2 includes descriptive summaries of the two study sites. Conducting the study at these institutions allowed access to more than 1,500 licensed beds, greater than 85,000 annual patient admissions, and more than 5,600 full- and part-time nurses. These institutions were chosen for several reasons. First, they typified academic research centers. It was likely that academic medical centers shared similar missions and therefore the nurse manager's activities would be similar. Second, conducting the study at more than one site ensured variation in the data collection. Third, these institutions were located in close proximity to the PI's home, travel to the study sites was neither a hardship nor costly, thereby keeping the study budget low.

Table 2. Study Site Descriptors					
Hospital	Number of beds	Annual admissions	Annual ER visits	Number of full- and part-time RNs	Total number of nurse managers (NMs) in hospital / total number Medical/Surgical NMs
Medical Center A	>500	>30,000	>60,000	2,051	24 / 11
Medical Center B	>1,000	>55,00	>110,000	3,603	49 / 15
Hospital totals	>1,500	>85,000	>170,000	5,654	73 / 26

Population and Sample

Nature of the population

The study population included nurse managers employed at two large academic medical organizations on Medical/Surgical inpatient units. The literature listed numerous definitions for the nurse manager (Skorga & Taunton 1989; Persson & Thylefors 1999; Shirey, Ebright & McDaniel, 2008; Mark 1994; Gribbons and Marshall 1984; Cooper, Manning & Poteet, 1988). For the purpose of this study, a nurse manager was defined as "a registered nurse holding the title of nurse manager in an acute care hospital and having 24-hour accountability of at least one department" (Shirey, Ebright & McDaniel, 2008).

In one of the organizations the title "nurse director" was used synonymously with the nurse manager title. This study was interested in those managers with direct supervisory and evaluative responsibility for unit-based staff, consisting of, but not limited to staff nurses,

nurse's aides, and unit-based support staff. The PI was not interested in examining the work of directors who supervised service lines with nurse managers as direct reports.

Conducting the study at the two study sites provided access to 73 nurse managers, 26 of whom work on Medical / Surgical or General Care Units.

Gaining access to the study site

For Medical Center A, the PI contacted the associate chief nurse to explain the study, request permission to conduct the study on site, and request assistance with subject recruitment. For Medical Center B, the PI communicated with a research director (see Appendix A).

Subject recruitment

Internal Review Board (IRB) approval was obtained by Vanderbilt University. Recruitment of nurse managers began after IRB approval was obtained at each study site. The PI sought to enroll a convenience sample of nurse managers rather than a random selection of nurse managers. A random sample may have placed an added burden on the organization and infringed on employee privacy rights. As mentioned, the PI worked with a designated hospital contact person at each study site to answer study implementation questions and to facilitate subject recruitment. A convenience sample of eight managers was obtained, four from each study site. Initially, only two nurse managers from each site volunteered. Nurse managers that participated were asked to assist in recruiting peer managers. Subsequently, six additional nurse managers volunteered bringing the PI access to a total of eight nurse managers.

The names and contact information of nurse managers who met the inclusion criteria were obtained by the hospital contact person, and emailed to the PI. The PI then contacted the nurse managers via email (see Appendix B) to introduce herself, gauge interest, request participation, and request a date convenient for the subject to begin the study. Upon meeting the nurse manager, the PI explained the purpose of the study, explained potential risks and benefits, answered questions, and obtained verbal informed consent.

Criteria for sample selection: Inclusion and exclusion criteria

In addition to employment at one of the two study sites, inclusion criteria were current employment as a nurse manager on a general medical/surgical unit, a minimum of one year of managerial experience, and a scope that included one or two inpatient units. The general medical/surgical unit was selected because the nurse manager activities on these units were expected to be similar. Work activities of nurse managers in a critical care, emergency, pediatric, and other units were expected to differ. Exclusion criterion for participation within each study site included serving as a preceptor for a nurse manager because the preceptor's role may vary greatly from that of the nurse manager. The preceptor nurse manager would likely have provided a lot of instruction to the novice or new nurse manager. The learning and on-boarding process was not germane to this study. Inclusion and exclusion criteria were reviewed during the introduction of the PI and study to the nurse manager.

Strategies to ensure human subjects protection

Study participants may have feared their activities would be disclosed to their superior. To alleviate participants' potential fear and mitigate risk to influence upon study results, the PI informed each participant that their participation was confidential, with no disclosure of participants' names to anyone, including the chief nurse or hospital contact person. Additionally, the PI used a codebook to further assure the anonymity of the participating nurse managers. An assigned code was the only link between the nurse manager and the data collection forms. The codebook was stored separately from the data collection forms. There was no risk of physical harm to participants, and study participants were notified verbally and in writing that they were free to leave the study at any time without consequence. There was no direct benefit to study participants other than the information gathered may help inform the knowledge of nurse managerial work. With self-reflection, subjects may have achieved greater awareness of what activities they performed as a result of participation. Study participants were not financially compensated for their time.

Completed paper activity logs and other forms were kept in a locked filing cabinet in the PI's work office. The only identifier on the activity logs was the assigned nurse manager code. Data were entered into a database, using a password protected and encrypted computer.

Calculation of activity observations

Prior to this study a pilot study was conducted at an academic medical center located in Chicago, Illinois in August of 2013. During the pilot study two nurse managers were observed, each for six hours, and each for one day. Ten random observations were made each hour for a

total of 60 observations made each day. During the two days, a total of 120 observations were recorded. Collecting 10 observations each hour proved feasible.

The PI proposed collecting two days of observations for each nurse manager. This duration differs from the pilot study which collected data for one workday. When it was uncovered during the pilot study that the nurse manager's workday routinely differed on Wednesdays, the study's duration was increased to two days. Wednesdays, at the pilot hospital were considered a "meeting day," whereby multiple meetings were scheduled for the nurse manager group. If data collection was limited to one day, study results may not represent of how the role was operationalized from an activity perspective. The nurse manager study protocol was designed for 12 observations per hour, building upon the feasibility of the pilot study to collect 10 observations per hour. It was known that the worked hours per day for the nurse manager would vary. Estimating an eight-hour day produced 96 observations (12 observations per hour times 8 hours).

A critique of prior research included small sample sizes of three and five (Arman, Dellve, Wikstrom & Tornstrom, 2009; Shirey, Ebright, &McDaniel, 2008). This study proposed collecting observations for eight nurse managers. Assuming an 8-hour workday, the estimated number of observations collected was 1,536 (8 nurse managers observed for 2 days, collecting 96 observations per day). Variation among the nurse managers was expected and this sample would be generalizable to general care nurse managers in the two studied institutions. Although not expected, this sample size allowed for some attrition.

Computing the number of observations needed for this nurse manager study was achieved utilizing a common equation in work sampling research: $n = (z^2 * p * (1-p)) / e^2$ In this

equation, the *n* or number of observations, was calculated from the Z value (1.96 used for 95% confidence interval) times the proportion (expressed as a decimal) times one minus the proportion (expressed as a decimal). This value was then divided by e^2 or the acceptable error, in this case 0.05 or five percent. Minimum needed observation numbers were generated for each work activity category (Table 3).

Table 3. Sample size computation based on needed observations using absolute precision

Work activity	Pilot observations	Proportion	Equation	Number of needed observations
Scheduled mtg	24	.20	$n=(1.960^2*0.20*(1-0.20))/0.05^2$	246
Unscheduled mtg	1	.01	$n=(1.960^2*0.01*(1-0.01))/0.05^2$	15
Desk work	52	.43	$n=(1.960^2*0.43*(1-0.43))/0.05^2$	376
Telephone	11	.09	$n=(1.960^2*0.09*(1-0.09))/0.05^2$	126
Clinical work	15	.13	$n=(1.960^2*0.13*(1-0.13))/0.05^2$	174
Rounding	12	.10	$n=(1.960^2*0.10*(1-0.10))/0.05^2$	138
Personal	5	.04	$n=(1.960^2*0.04*(1-0.04))/0.05^2$	59
Total	120	1.00		

Data Collection Methods

Procedures

The detailed procedures for data collection are listed in step-wise fashion in Table 4 and a synopsis follows. During the first encounter between the PI and the study subject, the PI explained the study and answered questions. A description of the study was provided to the nurse manager (see Appendix C). The PI then observed the nurse manager throughout two, eight-hour workdays, using non-participant observation and work sampling to record 12 randomly timed observations per hour. The twelve random times per hour were generated and supplied by the statistician. At each data collection time, the data collector observed and recorded the work activity performed by the nurse manager, the location of the activity, and the person(s) (by title, not name) with whom the nurse manager interacted. Data were recorded using a structured observation tool. These steps were repeated at each random data collection time with the entire protocol repeated for each subject.

Table 4. Study Protocol

Step	Description	Expected duration	Day of study
1	Introduce PI and study to nurse manager	1 minute	Day 1
2	Provide 1-page sheet to NM explaining study, participation voluntary, and ability to withdraw at any time	5 minutes	Day 1
3	Observe NM work activities, locations, and persons with whom he/she interacts	Entire workday, (8 hours)	Days 1 & 2
4	Conduct interview, administer Nurse Manager Activity Encounter form	15-20 minutes	Day 1
5	Administer self-report activity sheet	1 minute	Days 1 & 2

The PI served as the sole data collector for the study. Every attempt was made to not disrupt or interfere with the nurse manager's workflow. Data were collected using the structured observation tool (*The Nurse Manager Structured Observation Tool*), pen and a clock. Consistent with the fact that nurse managers usually worked Monday through Friday during regular business hours, the following time frames were chosen. Depending on the start time of the nurse manager's workday, activity observations began between 6AM and 9AM and continued for an eight consecutive hour period immediately following the start time, per nurse manager. Within an 8-hour workday, 96 observations were expected to be collected (12 observations per hour). The PI interviewed the nurse manager following the activity data collection in order to obtain nurse manager demographic and unit data. Lastly, each nurse manager self-reported her perceived percentage of time spent in each of the seven work activity categories; percentages summed to 100.

Observation and Work Sampling

Observation, and specifically work-sampling observation, was the primary method utilized in this study. As a data collection method, observation is versatile and frequently used to study work activity. Advantages of this method include cost, and, reliability and validity when compared to the alternative method of self-report. According to Polit and Hungler (1999), the observational sampling method is one way to survey a representative sample of activities or behaviors without having to observe continuously for long periods of time. Time sampling, or work sampling, is a method employing pre-selected observation times —

systematically or randomly (e.g. every 1-minute at 5-minute intervals, or 1-minute periods 12 times per hour).

Self-report

The self-report research method was used to achieve research aim two (*Is there a strong correlation between observed nurse manager activities and self-reported nurse manager activities*). At the conclusion of the workday the PI provided a sheet to the participating nurse manager with the following work activity categories: scheduled meeting, unscheduled meeting, deskwork, telephone, clinical work, rounding, and personal. The nurse managers were asked to recall and report their perception of the breakdown of their activities in the listed categories during the workday. The work activity categories were populated by the nurse manager; percentages summed to 100.

Interview

Interviews of the nurse managers were conducted by the PI at the end of the first data collection day for each nurse manager. During the interview the PI gathered descriptive data about the nurse manager and the inpatient unit he/she managed. The tool used in the interview is discussed in the next section. Because the questions posed during the interview were objective and answers were readily available, the nurse managers displayed no difficulty recalling the answers.

Field Notes

Field notes were used to provide context to observation data in two studies (Westbrook & Ampt, 2009; Ballerman, Shaw, Mayes, et al, 2011), and included such data as nurse staffing, the presence of students on the unit, as well as nurses' workloads. During this study, field notes were recorded in the margins of the Nurse Manager Activity tool. Examples of the field notes are presented in the next chapter.

Artifacts

Artifacts were collected to provide additional context. The technique for gathering artifacts in the nurse manager study was similar to the technique used by Miller and Buerhaus (2013) in a study examining decision-making in the charge nurse role. In the nurse manager study, artifacts were collected and annotated when used by the nurse manager to conduct their work activities. If an artifact was on the computer screen, the PI requested a printed screen shot. The PI recorded notes as to how the artifact was used.

Instruments

Structured Observation tool (The Nurse Manager Structured Observation Tool – Appendix D and E) (Research Aim 1)

According to Polit and Hungler (1999), a common approach used in structured observation of activities and behaviors is the creation of a category system. Structured category systems were designed to reduce observer subjectivity. "A category system

represents an attempt to designate in a systematic or quantitative fashion the qualitative behaviors and events transpiring with the observational setting (p.371)."

Standardized observation forms, or work sampling check sheets, were common in research studies that examine work activity (Abdellah, 1954; Upenieks, 1998; Hendrickson, Doddato, & Kovner, 1990). The work activity observation tool used in this study, The Nurse Manager Activity Structured Observation tool, may be found as Appendix D, with definitions of the terms used in this tool included as Appendix E. The tool has not been used in prior research, but has face validity, defined as "a type of validity that assures that 'on its face' the operationalization seems like a good translation of the construct" (Trochim & Donnelly, 2008). Further, the tool has been shared with nurse managers to elicit feedback and establish comprehensiveness. The Nurse Manager Activity Structured Observation Tool was organized with four distinct sections (time/field notes, activity, person, location). The time section was populated with the 12 random times each hour, for a total of 8 hours. At the time of observation the data collector circled one activity from the seven activity sections, one person, and one location. The activity headings (scheduled meeting, unscheduled meeting, desk work, telephone, clinical work, rounding, personal) were adapted from the earlier works of Mintzberg (whose work on managerial activity began in the 1970s) and Arman and colleagues (2009). The term "rounding" was used by the PI to replace Mintzberg and Arman et al.'s term "tours." In the event that no activity, person, or location matched those listed, a space for "other" was available, and populated by the PI.

Nurse Manager Activity Encounter form (Research Aim 1)

Following the activity data collection, the data collector interviewed the participant to gather information about the nurse manager and the nursing unit. The interviewer utilized the Nurse Manager Encounter Form (Appendix F) adapted from previous work conducted by Minnick and colleagues (Minnick, Fogg, Mion, Catrambone & Johnson, 2007; Minnick, Mion, Johnson, & Catrambone, 2007). Questions 1 through 45 on the Encounter form were designed to elicit operational data about the nurse manager's inpatient unit. Sample questions included: *What is the number of operating beds, What is the unit's occupancy rate today, What is the total number of RN staff that you supervise,* among others. Questions 46 through 52 focus on the nurse manager and include the questions: *Number of years managing this unit, Number of years in management, highest nursing education,* among others.

Self-report form (Research Aim 2)

The self-report form, administered at the end of each data collection day, was used by the nurse manager to record the percentage of time they spent in each activity category may be viewed in Appendix G.

Data Analysis

Data Analysis (Research Aim 1: To identify the work activities performed by the nurse manager, where the activities are performed, and with whom the nurse manager interacts when performing the activities.)

There were no missing data. Out of range data, or outliers, were located by running a frequency distribution. There was no pattern noted in the outlying data and those data were included in all analyses.

Observations of the work activities were coded as nominal values (either perform a given activity or do not). The PI served as the sole data collector, therefore, inter-rater reliability was of no concern. The work activity data analysis was conceptualized as two variables— 1) the number of times the activity was observed and 2) the proportion of time the activity was observed. Frequency distributions were used to summarize the number of times an activity was observed during each observation day and across both days. To calculate the proportion of time that an activity was observed, the number of activity observations was divided by the number of total activity observations per nurse manager (again during each observation day and across both days). Absolute values of the differences in the percentage of time spent in specific activities in day 1 and day 2 of observations were also generated. The nurse manager data values were then summarized with median, interquartile range, and minimum-maximum values. Boxplots were also generated to graphically display the observation data. Ninety-five percent confidence intervals were generated for the proportion of time spent in various activities.

Data Analysis (Research Aim 2: To determine whether there is a relationship between observed nurse manager activities and self-reported nurse manager activities.)

Two approaches were used to assess the agreement and/or correlation between observed nurse manager activities and self-reported activities. One approach was to evaluate

the differences between the two types of data collection using Wilcoxon Signed-Ranks tests. Median, IQR, min, and max value summarized values from each type of data collection, as well as the differences between them. The extent of the correlation between the paired measurements of the activities (observed and self-reported) were also assessed using intraclass correlations.

CHAPTER IV

RESULTS

The results of this descriptive study exploring the nurse manager's work activities in an acute care setting are presented in this chapter. A description of the study sites, data collection, and sample will be followed by the study's findings organized by the two aims.

Study Sites

The sites for the study were two large academic medical institutions located in the Midwest. Combined, the two sites offered access to more than 1,600 inpatient beds and employed more than 5,600 full and part-time nurses. Descriptive summaries of the hospital sites were presented in Chapter III.

Data Collection

Eight nurse managers employed at two large academic medical hospitals were observed for two full workdays between March and June of 2015. More than 1,500 (N = 1518) observations were made during the 126.5 hours of observation (one nurse manager ended her day 1.5 hours early for an unscheduled personal reason). Inclusion and exclusion criteria were presented in Chapter III.

Study Nurse Manager Sample

Eight nurse managers, four from each hospital site participated in this study. Descriptive summaries of the nurse managers are displayed in Table 5. Each nurse manager had more than five years of total management experience; the least experienced member had 6 years of total management experience. The overall sample had a median of 11.3 years of total managerial experience (IQR = 7.3-22.3; range 6-29 years) and a median of 5.5 years of managerial experience on their current unit (IQR = 2.1-11.3; range 1.5-29). When asked about the highest nursing degree they had earned, a majority of the nurse managers responded that they were prepared at the Master's level (62.5%). One manager had an Associate's degree and two had earned Baccalaureate degrees. Every nurse manager was female, described themselves as Caucasian, and had a median age of 45.5 years (IQR = 39.8-53; range 36-64). At one of the hospitals the nurse managers were referred to as "nurse managers," while at the other hospital they were referred to as "unit directors."

Table 5. Descriptive Data for the Nurse Manager Sample (N=8)	
Total years of management experience	
Median	11.3
IQR	[7.3-22.3]
Min, Max	6, 29
Total year managing current unit	
Median	5.5
IQR	[2.1-11.3]
Min, Max	1.5, 29.0
Highest nursing education	
Associate's degree N (%)	1 (12.5)
Bachelor's degree N (%)	2 (25)
Master's degree N (%)	5 (62.5)
Age	
Median	45.5
IQR	[39.8-53]
Min, Max	36, 64

Nurse Manager Scope

Seven of the nurse managers managed one inpatient nursing unit each; one had managerial oversight for two similar inpatient nursing units. Descriptions of the nursing units included: general medical, clinical research, hematology/oncology-general care unit, orthopedics-general care unit, oncology, and general surgical. At the end of day one of data collection, the nurse managers were interviewed about their nursing units and managerial scope. Summaries of those interviews are in Table 6. The nine inpatient nursing units had a median number of 30 beds in operation (IQR = 25.0-32.0; range 18-33); median current occupancy on the interview day was 27 (IQR 20.5-31.5; range 13-33). The study sample managed a median of 37 registered nurses with a range of 20-60. This scope equated to a median of 32.4 budgeted FTEs (full time equivalents) and a range of 18.2-43.0. In addition to the registered nurse staff, all of the nurse managers supervised nursing assistants. The median number of nursing assistants was 16 (IQR = 11-19.5; range 1-20) which equated to a median of 11.8 budgeted nurse assistant FTEs (range 1.0-21.2).

Table 6. Descriptive Data of the Inpatient Units (N=9)* Managed by the nurse manager subjects	
No. of units managed by the NMs (N=8)	
1 Unit N (%)	7 (87.5)
2 Units N (%)	1 (12.5)
Assistant manager for unit (N=9)	
Yes N (%)	4 (44.4)
No N (%)	5 (55.5)
Operating beds*	
Median	30.0
IQR	[25.0-32.0]
Min, Max	18.0, 33.0
Current occupancy*	
Median	27.0
IQR	[20.5-31.5]
Min, Max	13.0, 33.0
No. of RNs managed*	
Median	37.0
IQR	[30.0-47.0]
Min, Max	20.0, 60.0
No. of budgeted RN FTEs*	
Median	32.4
IQR	[27.6-36.8]
Min, Max	18.2, 43.0
No. RNs on unit with < 1 year experience*	
Median	8
IQR	[5.5-9.5]
Min, Max	2.0, 19.0
No. of nurse assistants managed*	
Median	16
IQR	[11.0-19.5]
Min, Max	1.0, 20.0
No. of budgeted nurse assistant FTEs*	
Median	11.8
IQR	[10.1-13.0]
Min, Max	1.0, 21.2
*One manager's scope included two inpatient units; 9 units total.	

Aim 1: To identify the work activities performed by the nurse manager, where the activities are performed, and with whom the nurse manager interacts when performing the activities.

The findings for Aim 1 will be divided into three sections: nurse manager activities, locations of the activities, and the people with whom the nurse manager performed those activities.

Nurse Manager Activities

During the 16 days of data collection 1,518 activities were recorded. Those activities are summarized in terms of the percentage of time spent in the specific activity (see Table 7 and Table 8). As shown in Table 7, there was considerable variability in the activities performed by the nurse managers. For example, during the two observation days at least one manager did not participate in any scheduled meetings, unscheduled meetings, telephone, clinical, and rounds activities during one of the days.

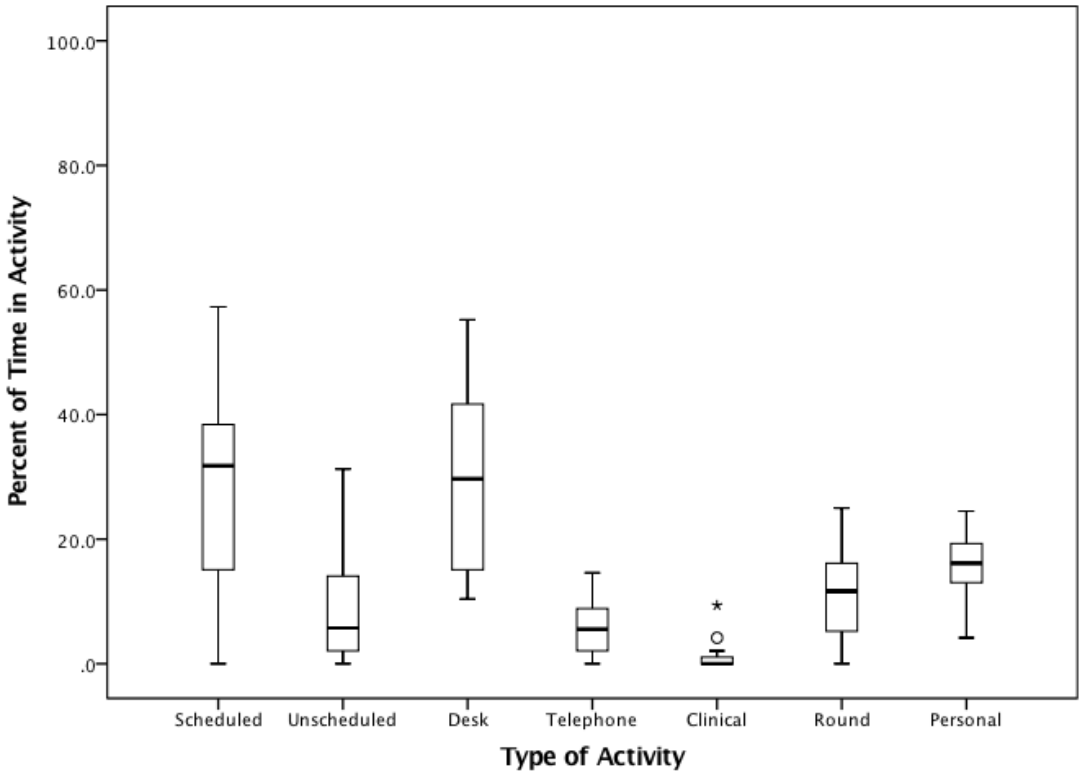
Table 7. Percentage (N) of Observed Nurse Manager Activities (N=1518)								
	NM1	**NM2**	**NM3**	**NM4**	**NM5**	**NM6**	**NM7**	**NM8**
Scheduled Meetings (N=428)	30.5(53)	22.9(44)	20.8(40)	16.7(32)	44.3(85)	9.9(19)	42.7(82)	38.0(73)
Unscheduled Meetings (N=146)	1.7(3)	8.3(16)	10.4(20)	27.1(52)	4.7(9)	21.9(42)	1.0(2)	1.0(2)
Desk Work (N=430)	28.7(50)	22.9(44)	43.8(84)	27.6(53)	26.0(50)	41.2(79)	20.8(40)	15.6(30)
Telephone (N=90)	4.0(7)	7.3(14)	1.0(2)	10.4(20)	6.3(12)	5.2(10)	7.3(14)	5.7(11)
Clinical (N=19)	0.0(0)	5.2(10)	1.0(2)	0.0(0)	0.5(1)	0.0(0)	2.1(4)	1.0(2)
Rounds (N=170)	11.5(20)	16.7(32)	16.2(31)	6.8(13)	4.2(8)	6.3(12)	6.3(12)	21.9(42)
Personal (N=235)	23.6(41)	16.7(32)	6.8(13)	11.5(22)	14.1(27)	15.6(30)	19.8(38)	16.7(32)
Total N= 1518	174	192	192	192	192	192	192	192

Overall, the highest percentage of nurse manager's time was spent in desk work (N = 430; Median 29.7%; 95% C.I. 26.1-30.6) and scheduled meetings (N = 428; Median 31.8%; 95% C.I. 25.9-30.5), followed by personal (N = 235; Median 16.1%; 95% C.I. 13.7-17.3), rounds (N = 170; Median 11.6%; 95% C.I. 9.6-12.8), and unscheduled meetings (N = 146; Median 5.7%; 95% C.I. 8.1-11.1). The least frequently occurring activities were telephone (N = 90; Median 5.5%; 95% C.I. 4.7-7.1) and clinical (N = 19; Median 0.0%; 95% C.I. 0.7-1.8) (see Table 8 and Figure 3). Within the desk work activity category numerous sub-activities were observed. Examples of the most frequently occurring sub-activities in this category were email, meeting preparation,

budgeting, and scheduling / staffing. In the scheduled meetings category, the three most frequently occurring sub-activities were scheduled meetings in which information flowed from a third party *to* the nurse manager, followed by meetings in which content flowed *from* the manager to others, and interview activities. Of the least frequently occurring activity categories, clinical and telephone, examples of the most frequently occurring clinical sub-activities included patient care and communication with the patient and/or family. Examples of frequently occurring telephone sub-activities included schedule and staffing activities, and team communication.

Table 8. Percentage of Time Activities Observed During Day 1 and Day 2 Combined (N=1518)		
	Percent of Time Day 1 and Day 2 Combined	**95% C.I.**
Scheduled Meetings (N=428)		
Median	31.8	
IQR	[13.8-39.0]	25.9-30.5
Min, max	0.0, 57.3	
Unscheduled Meetings (N=146)		
Median	5.7	
IQR	[2.1-15.9]	8.1-11.1
Min, max	0.0, 31.3	
Desk Work (N=430)		
Median	29.7	
IQR	[14.8-41.7]	26.1-30.6
Min, max	10.4, 55.2	
Telephone (N=90)		
Median	5.5	
IQR	[2.1-9.1]	4.7-7.1
Min, max	0.0, 14.6	
Clinical (N=19)		
Median	0.0	
IQR	[0.0-1.0]	0.7-1.8
Min, max	0.0, 9.4	
Rounds (N=170)		
Median	11.6	
IQR	[4.7-16.4]	9.6-12.8
Min, max	0.0, 25.0	
Personal (N=235)		
Median	16.1	
IQR	[12.8-19.5]	13.7-17.3
Min, max	4.2, 24.5	

Figure 3. Percentage of Time the Nurse Manager Spends in Each Activity (N=1518)



* ° are outliers

Locations of the Nurse Manager Activities

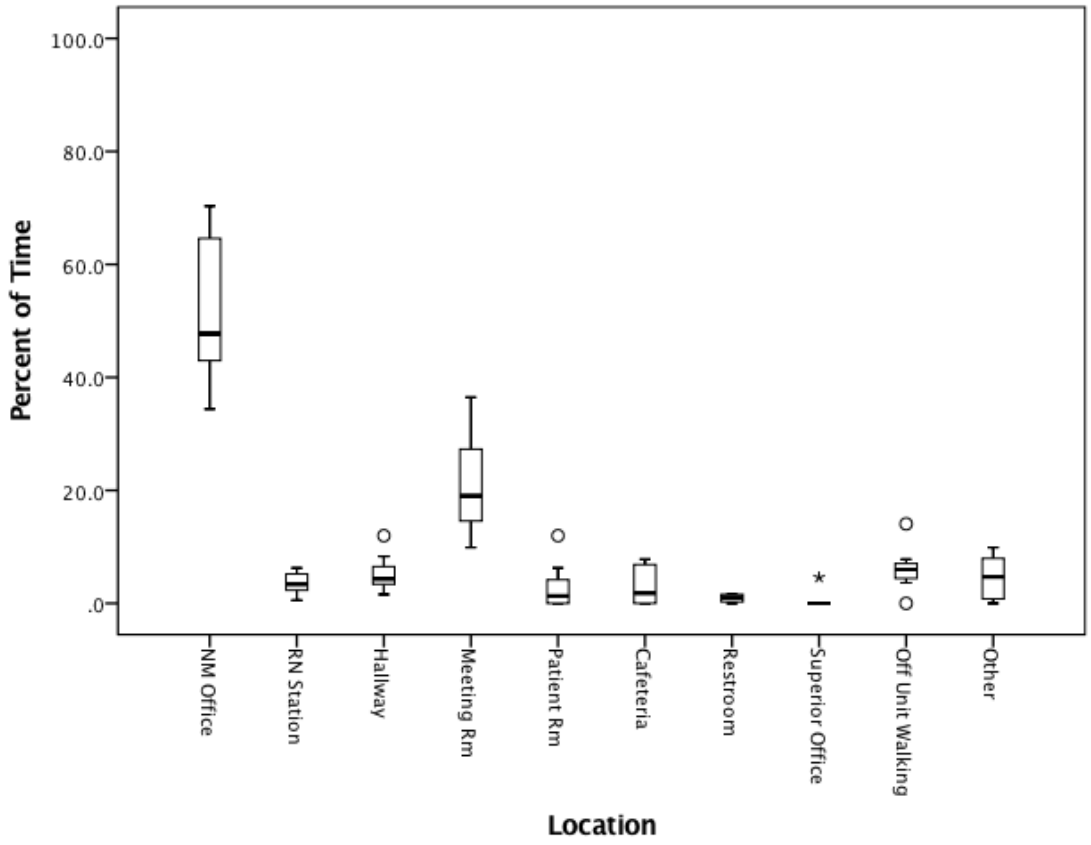
The nurse manager moved to different locations throughout the workday to perform activities. As shown in Table 9, there was also considerable variability among the nurse managers in where they spent their time.

Table 9. Percentage (N) of Observed Locations Where Nurse Manager Performs Activities								
	NM1	**NM2**	**NM3**	**NM4**	**NM5**	**NM6**	**NM7**	**NM8**
Nurse Manager Office (N=789)	46.6(81)	41.1(79)	64.1(123)	65.1(125)	49.0(94)	70.3(135)	34.4(66)	44.8(86)
Nurse's Station (N=55)	0.6(1)	6.3(12)	3.6(7)	3.1(6)	4.2(8)	3.1(6)	1.6(3)	6.3(12)
Hallway (N=80)	4.0(7)	8.3(16)	12.0(23)	1.6(3)	3.6(7)	3.1(6)	4.7(9)	4.7(9)
Meeting Room (N=319)	21.3(37)	17.7(34)	12.5(24)	16.7(32)	33.3(64)	9.9(19)	36.5(70)	20.3(39)
Patient Room (N=44)	0.0(0)	6.3(12)	2.1(4)	0.0(0)	0.5(1)	0.0(0)	2.1(4)	12.0(23)
Cafeteria (N=47)	7.5(13)	6.3(12)	0.0(0)	0.0(0)	0.0(0)	7.8(15)	3.6(7)	0.0(0)
Restroom (N=14)	0.6(1)	1.6(3)	0.5(1)	0.0(0)	1.6(3)	0.0(0)	1.6(3)	1.6(3)
Superior Office (N=8)	4.6(8)	0.0(0)	0.0(0)	0.0(0)	0.0(0)	0.0(0)	0.0(0)	0.0(0)
Off Unit Walking (N=93)	6.3(11)	5.2(10)	0.0(0)	3.6(7)	7.8(15)	5.7(11)	14.1(27)	6.3(12)
Other (N=69)	8.6(15)	7.3(14)	5.2(10)	9.9(19)	0.0(0)	0.0(0)	1.6(3)	4.2(8)
Total N=1518	174	192	192	192	192	192	192	192

Overall summaries are presented in Table 10 and shown graphically in Figure 4. Approximately half of the nurse manager's time was spent in the nurse manager's office (N = 789; Median = 47.8%; 95% C.I. = 49.5-54.5). Nurse managers spent the least amount of time in the restroom (N = 14; Median = 1.1%; 95% C.I. = 0.4-1.4) and their superior's office (N = 8; Median = 0.0%; 95% C.I. = 0.2-0.9). Sixty-nine observations (4.7%) were categorized as "other." The "other" category was used predominately when nurse managers were in a "break room" eating a meal or talking with staff. During the 16 days of observation, only one nurse manager was observed in a one-to-one meeting with her superior in their superior's office (N = 8). Three of the eight nurse managers were not observed in a patient room. As both of the hospitals' physical plants were large in area, nurse managers spent a portion of their time walking to and from meetings (N = 93; Median = 6.0) off their unit(s).

Table 10. Percentage of Time Location was Observed During Day 1 and Day 2 Combined (N=1518)		
	Percent of Time Day 1 and Day 2 Combined	**95% C.I.**
NM Office (N=789)		
Median	47.8	
IQR	[42.1-64.8]	49.5-54.5
Min, max	34.4,64.8	
RN Station (N=55)		
Median	3.4	
IQR	[2.0-5.7]	2.7-4.6
Min, max	0.6,6.3	
Hallway (N=80)		
Median	4.4	
IQR	[3.3-7.4]	4.2-6.4
Min, max	1.6,12.0	
Meeting Room (N=319)		
Median	19.0	
IQR	[13.5-30.3]	19.0-23.1
Min, max	9.9,36.5	
Patient Room (N=44)		
Median	1.3	
IQR	[0.0-5.2]	2.1-3.7
Min, max	0.0,12.0	
Cafeteria (N=47)		
Median	1.8	
IQR	[0.0-7.2]	2.2-4.0
Min, max	0.0,7.8	
Restroom (N=14)		
Median	1.1	
IQR	[0.1-1.6]	0.4-1.4
Min, max	0.0,1.6	
Superior Office (N=8)		
Median	0.0	
IQR	[0.0-0.0]	0.2-0.9
Min, max	0.0,4.6	
Off Unit Walking (N=93)		
Median	6.0	
IQR	[4.0-7.4]	4.9-7.3
Min, max	0.0,14.1	
Other (N=69)		
Median	4.7	
IQR	[0.4-8.3]	3.5-5.6
Min, max	0.0,9.9	

Figure 4. Percentage of Time and Locations Where the Nurse Manager Performs Work Activities



* ° are outliers

Persons with Whom the Nurse Manager Performs Activities

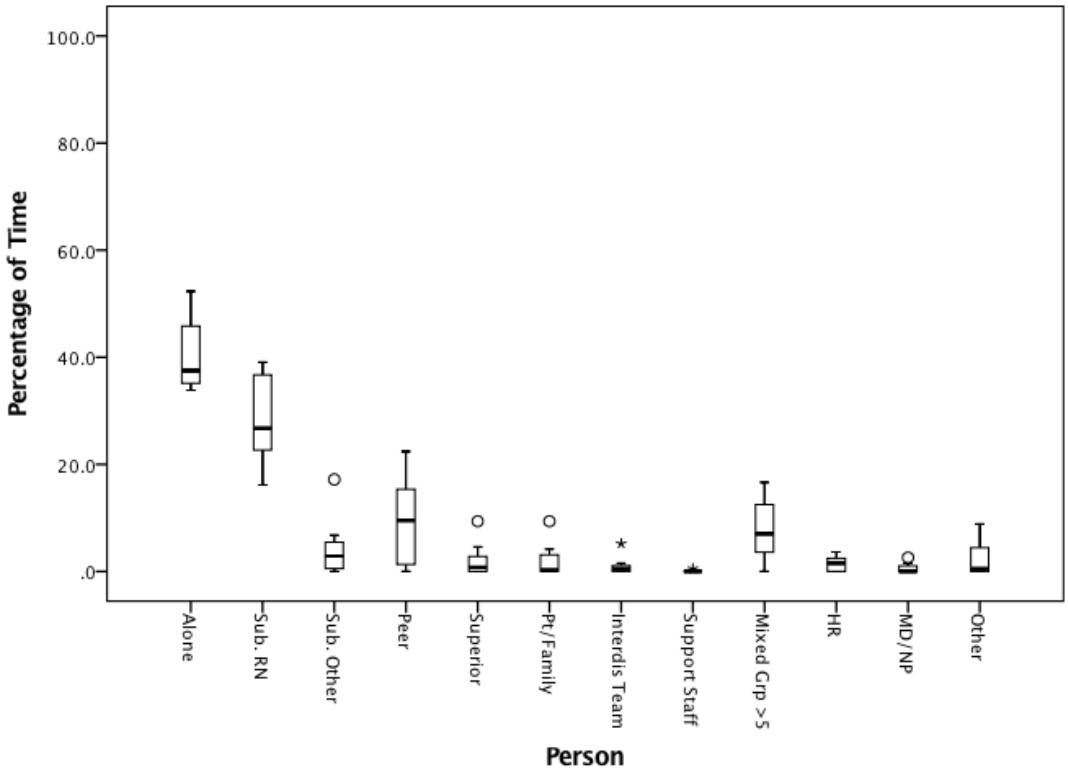
Similar to the locations, the nurse managers demonstrated considerable variability with whom they conducted their work activities (see Table 11).

Table 11. Percentage (N) of Observed People with Whom the Nurse Manager Performs Activities (N=1518)								
	NM1	**NM2**	**NM3**	**NM4**	**NM5**	**NM6**	**NM7**	**NM8**
Alone (N=611)	52.3(91)	33.9(65)	46.9(90)	36.5(70)	38.0(73)	44.8(86)	37.8(71)	33.9(65)
Subordinate Nurse (N=432)	26.4(46)	37.5(72)	16.1(31)	35.9(69)	21.9(42)	39.1(75)	23.4(45)	27.1(52)
Subordinate Other (N=67)	0.6(1)	4.2(8)	17.2(33)	3.1(6)	0.5(1)	2.6(5)	0.0(0)	6.8(13)
Peer Nurse Manager (N=142)	8.6(15)	12.0(23)	0.0(0)	18.8(36)	22.4(43)	2.1(4)	10.4(20)	0.5(1)
Superior (N=31)	4.6(8)	0.0(0)	0.0(0)	1.0(2)	0.5(1)	1.0(2)	0.0(0)	9.4(18)
Patient / Family (N=31)	0.0(0)	4.2(8)	0.0(0)	0.0(0)	0.5(1)	0.0(0)	2.1(4)	9.4(18)
Interdisciplinary Team Other (N=16)	0.6(1)	0.0(0)	5.2(10)	0.0(0)	0.5(1)	0.5(1)	1.6(3)	0.0(0)
Support Staff (N=1)	0.0(0)	0.0(0)	0.5(1)	0.0(0)	0.0(0)	0.0(0)	0.0(0)	0.0(0)
Mixed Group > 5 people (N=120)	4.6(8)	6.3(12)	2.6(5)	0.0(0)	14.6(28)	7.8(15)	16.7(32)	10.4(20)
Human Resources (N=22)	2.3(4)	0.0(0)	0.0(0)	3.6(7)	1.0(2)	2.1(4)	0.0(0)	2.6(5)
Physician / NP (N=9)	0.0(0)	0.5(1)	2.6(5)	0.0(0)	0.0(0)	0.0(0)	1.6(3)	0.0(0)
Other (N=36)	0.0(0)	1.6(3)	8.9(17)	1.0(2)	0.0(0)	0.0(0)	7.3(14)	0.0(0)
Total N=1518	174	192	192	192	192	192	192	192

As shown in Table 12 and graphically in Figure 5, the highest percentage of work activities were conducted alone (N = 611; Median = 37.5%; 95% C.I. = 37.8-42.7) or with a subordinate nurse (N = 432; Median = 26.8%; 95% C.I. = 26.2-30.7). Nurse managers were observed least frequently interacting with interdisciplinary teams (other) (N = 16; Median = 0.5%; 95% C.I. = 0.5-1.6), physicians / nurse practitioners (N=9; Median 0.0%; 95% C.I. = 0.2-0.1), and support staff (N = 1; Median = 0.0%; 95% C.I. = -0.1-0.2). A partial list of persons included in the "other" category were: an informatics technician, maintenance personnel, and security. As shown by the IQRs and is most apparent in Figure 5, there was greatest variability in the alone, subordinate nurse, peer group, and mixed group with greater than five people categories, while the support staff, physician and nurse practitioner, and interdisciplinary (other) categories varied the least.

Table 12. Percentage of Time Person was Observed During Day 1 and Day 2 Combined (N=1518)			
		Percent of Time Day 1 and Day 2 Combined	**95% C.I.**
Alone (N=611)	Median	37.5	
	IQR	[34.5-46.4]	37.8-42.7
	Min, max	33.9,52.3	
Subordinate RN (N=432)			
	Median	26.8	
	IQR	[22.3-37.1]	26.2-30.7
	Min, max	16.1,39.1	
Subordinate Other (N=67)			
	Median	2.9	
	IQR	[0.5-6.1]	3.4-5.5
	Min, max	0.0,17.2	
Peer NM (N=142)	Median	9.5	
	IQR	[0.9-17.1]	7.9-10.8
	Min, max	0.0,22.4	
Superior (N=31)	Median	0.8	
	IQR	[0.0-3.7]	1.3-2.8
	Min, max	0.0,9.4	
Patient / Family (N=31)			
	Median	0.3	
	IQR	[0.0-3.6]	1.3-2.8
	Min, max	0.0,9.4	
Interdisciplinary Other (N=16)			
	Median	0.5	
	IQR	[0.0-1.3]	0.5-1.6
	Min, max	0.0,5.2	
Support Staff (N=1)	Median	0.0	
	IQR	[0.0-0.0]	-0.1-0.2
	Min, max	0.0,0.5	
Mixed Group > 5 people (N=120)			
	Median	7.0	
	IQR	[3.1-13.5]	6.6-9.3
	Min, max	0.0,16.7	
Human Resources (N=22)			
	Median	1.6	
	IQR	[0-2.5]	0.9-2.1
	Min, max	0.0,3.6	
MD/NP (N=9)			
	Median	0.0	
	IQR	[0.0-1.3]	0.2-0.1
	Min, max	0.0,2.6	
Other (N=36)	Median	0.5	
	IQR	[0.0-5.9]	1.6-3.1
	Min, max	0.0,8.9	

Figure 5. Percentage of Time and Persons with Whom the Nurse Manager Performs Work Activities



* ° are outliers

Variability of Activities by Day

The study was designed, in part, by the results of a pilot study. During the pilot study, it was noted that the nurse manager's work may differ depending on the day. For example, at the pilot site efforts were made to schedule large nurse manager meetings on the same day each week (Wednesdays). Because of this weekly routine, the study's protocol dictated data

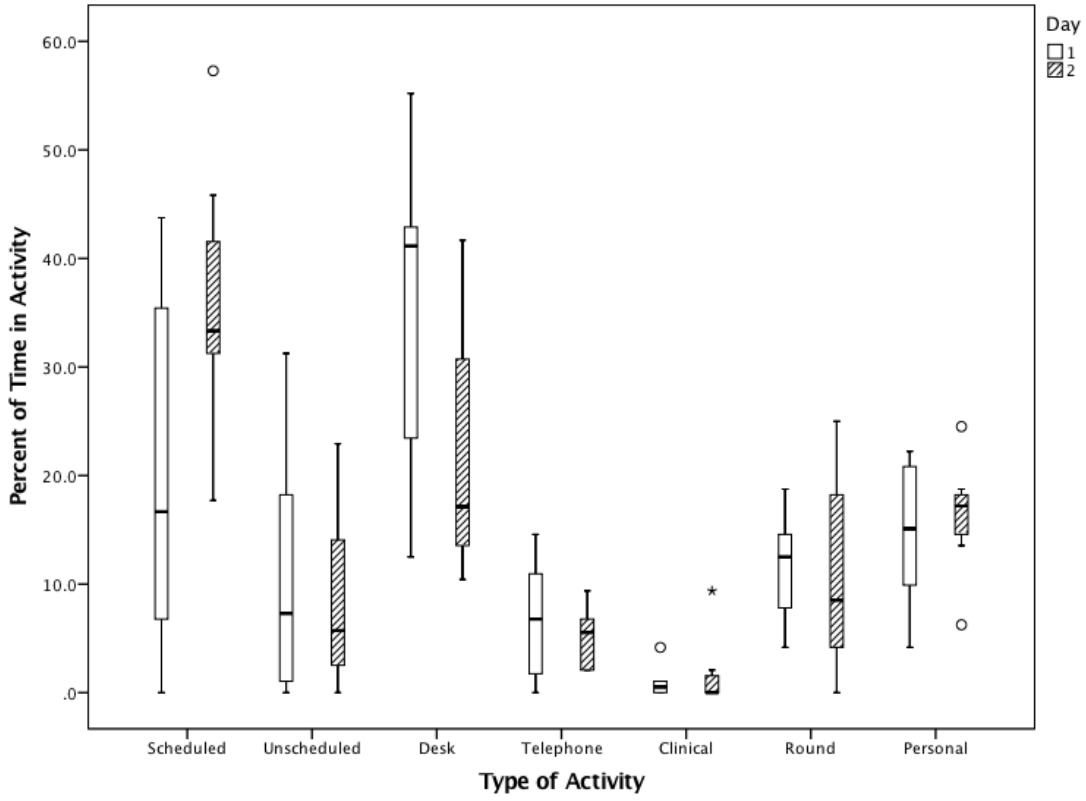
observation occur on two days. The frequencies and percentages of time spent in activities by day and nurse manager are presented in Table 13.

Table 13. Percentage of Time Observed (N) in Each Activity by Day and the Absolute Difference Between the Two Days (N=1518)

Activity (Day)	NM1	NM2	NM3	NM4	NM5	NM6	NM7	NM8
SchedMtg (1)	20.8(15)	12.5(12)	11.5(11)	0.0(0)	31.3(30)	2.1(2)	39.6(38)	43.8(42)
SchedMtg (2)	37.3(38)	33.3(32)	30.2(29)	33.3(32)	57.3(55)	17.7(17)	45.8(44)	32.3(31)
Abs Diff	16.4	20.8	18.8	33.3	26.0	15.6	6.3	11.5
UnSchMtg (1)	0.0(0)	10.4(10)	10.4(10)	31.3(30)	4.2(4)	26.0(25)	0.0(0)	2.1(2)
UnSchMtg (2)	2.9(3)	6.3(6)	10.4(10)	22.9(22)	5.2(5)	17.7(17)	2.1(2)	0.0(0)
Abs Diff	2.9	4.2	0.0	8.3	1.0	8.3	2.1	2.1
DeskWork (1)	43.1(31)	30.2(29)	55.2(53)	42.7(41)	41.7(40)	40.6(39)	12.5(12)	16.7(16)
DeskWork (2)	18.6(19)	15.6(15)	32.3(31)	12.5(12)	10.4(10)	41.7(40)	29.2(28)	14.6(14)
Abs Diff	24.4	14.6	22.9	30.2	31.3	1.0	16.7	2.1
Telephone (1)	1.4(1)	12.5(12)	0(0)	14.6(14)	5.2(5)	8.3(8)	9.4(9)	2.1(2)
Telephone (2)	5.9(6)	2.1(2)	2.1(2)	6.3(6)	7.3(7)	2.1(2)	5.2(5)	9.4(9)
Abs Diff	4.5	10.4	2.1	8.3	2.1	6.2	4.2	7.3
Clinical (1)	0.0(0)	1.0(1)	0.0(0)	0.0(0)	1.0(1)	0.0(0)	4.2(4)	1.0(1)
Clinical (2)	0.0(0)	9.4(9)	2.1(2)	0.0(0)	0.0(0)	0.0(0)	0.0(0)	1.0(1)
Abs Diff	0.0	8.3	2.1	0.0	1.0	0.0	4.2	0.0
Rounds (1)	12.5(9)	13.5(13)	15.6(15)	7.3(7)	4.2(4)	8.3(8)	12.5(12)	18.8(18)
Rounds (2)	10.8(11)	19.8(9)	16.7(16)	6.3(6)	4.2(4)	4.2(4)	0.0(0)	25.0(24)
Abs Diff	1.7	6.2	1.0	1.0	0.0	4.2	12.5	6.3
Personal (1)	22.2(16)	19.8(19)	7.3(7)	4.2(4)	12.5(12)	14.6(14)	21.9(21)	15.6(15)
Personal (2)	24.5(25)	13.5(13)	6.3(6)	18.8(18)	15.6(15)	16.7(16)	17.7(17)	17.7(17)
Abs Diff	2.3	6.2	1.0	14.6	3.1	2.1	4.2	2.1
Total obs Day 1	72	96	96	96	96	96	96	96
Total obs Day 2	102	96	96	96	96	96	96	96

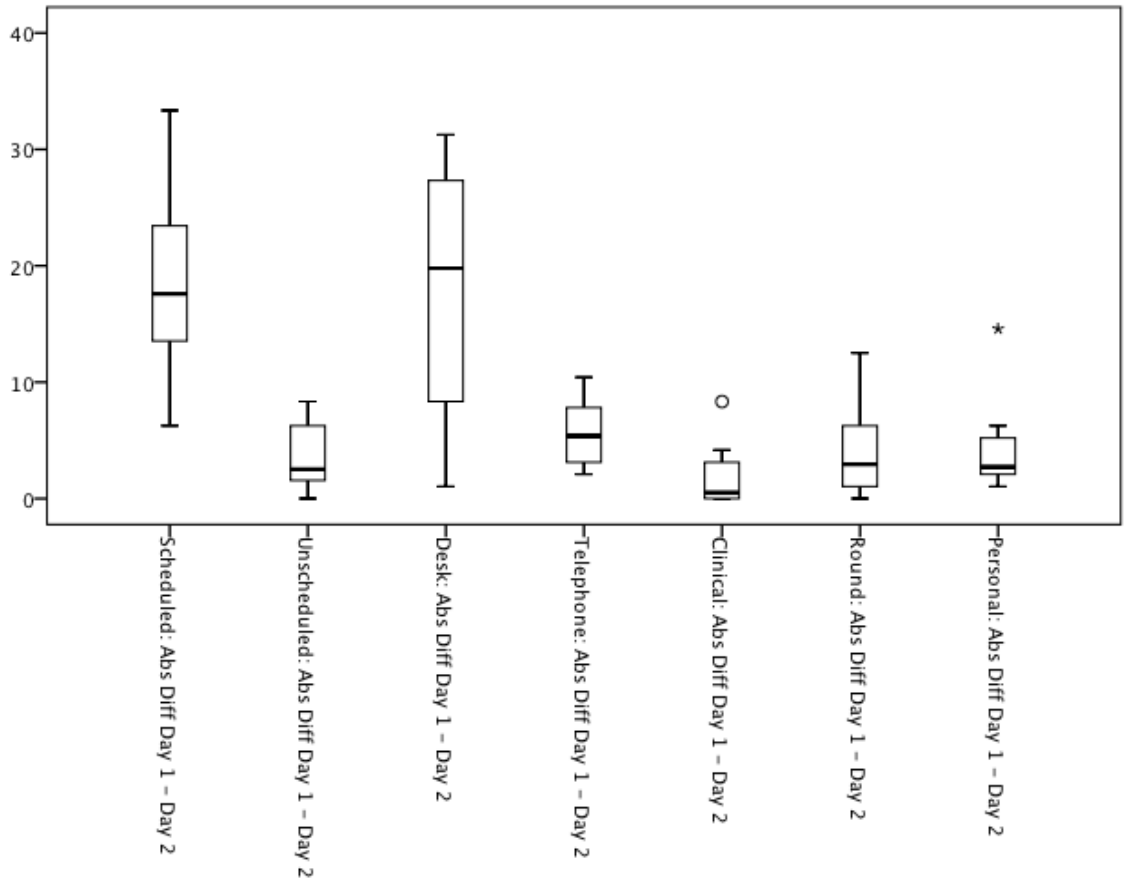
The variability in activities between days of observation detailed in the table above is illustrated graphically in Figures 6 and 7. As is apparent the greatest daily variation was observed in desk work and scheduled meetings. Day to day variability in the other activities was considerably less (see Figure 7).

Figure 6. Comparison of Percentage of Time the Nurse Manager Performs Activities by Day



* ° are outliers

Figure 7. Absolute Difference in Percentage of Time the Nurse Manager Performs Activities Day to Day



* ° are outliers

Aim 2: To determine whether there is a relationship between observed nurse manager activities and self-reported nurse manager activities.

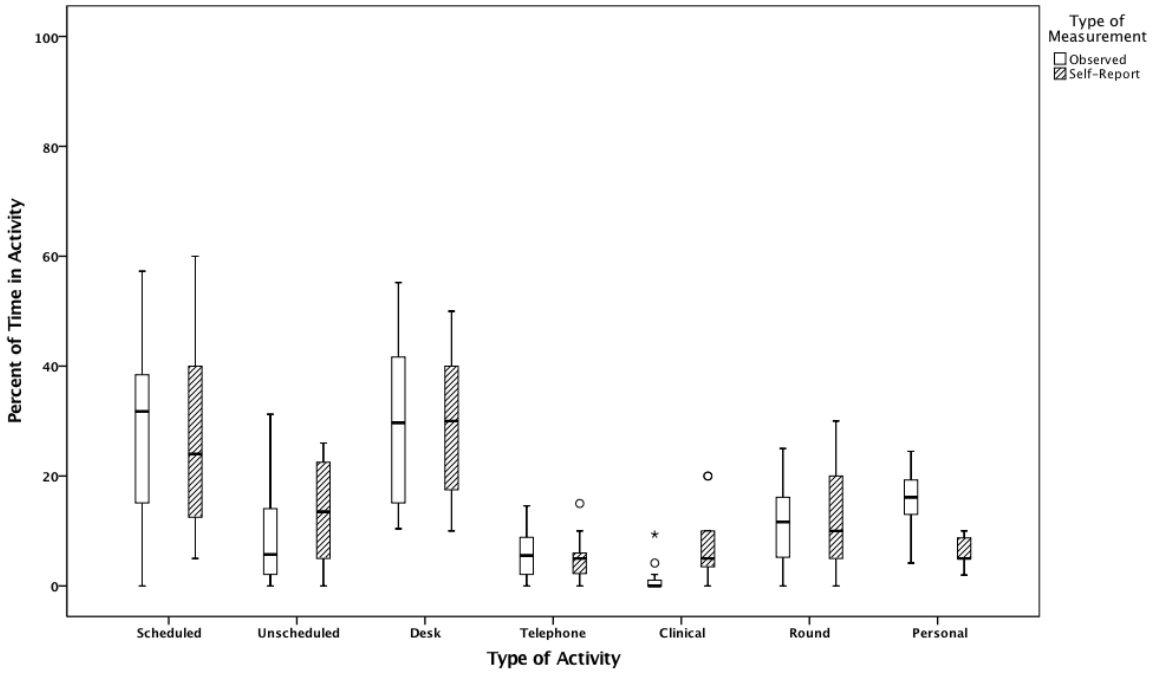
At the conclusion of each data collection day, each nurse manager was asked to record the percentage of time they recalled spending in each of the activity categories. Table 14 displays the percentage of time each day that each nurse manager was observed in the listed activity, followed by the self-reported percentage in parentheses. Some of the observed and self-reported percentage values are similar. For example, NM1 on Day 1 was observed by the PI performing the scheduled meeting activity for 20.8 percent of the time, and NM1 self-reported that 20 percent of that work day had been spent in scheduled meetings. Other sets of values showed minimal to no agreement. For example, NM3 on Day 1 was not observed by the PI performing any clinical activities (0.0%). However, NM3 self-reported that 20 percent of time that day had been spent in clinical activities.

Table 14. Activity Percentages by Nurse Manager and Day, Observed and (Self-Reported); (N=1518)

	Scheduled Meetings	Unscheduled Meetings	Desk work	Telephone	Clinical	Rounds	Personal
NM1 Day 1	20.8 (20)	0.0 (0)	43.1 (50)	1.4 (0)	0.0 (10)	12.5 (10)	22.2 (10)
NM1 Day 2	37.3 (50)	2.9 (5)	18.6 (20)	5.9 (5)	0.0 (5)	10.8 (10)	24.5 (5)
NM2 Day 1	12.5 (15)	10.4 (25)	30.2 (35)	12.5 (10)	1.0 (10)	13.5 (0)	19.8 (5)
NM2 Day 2	33.3 (20)	6.3 (25)	15.6 (10)	2.1 (2.5)	9.4 (10)	19.8 (25)	13.5 (7.5)
NM3 Day 1	11.5 (10)	10.4 (10)	55.2 (40)	0.0 (5)	0.0 (20)	15.6 (10)	7.3 (5)
NM3 Day 2	30.2 (20)	10.4 (20)	32.3 (10)	2.1 (2)	2.1 (20)	16.7 (25)	6.3 (3)
NM4 Day 1	0.0 (7)	31.3 (26)	42.7 (30)	14.6 (7)	0.0 (5)	7.3 (15)	4.2 (10)
NM4 Day 2	33.3 (30)	22.9 (20)	12.5 (15)	6.3 (5)	0.0 (5)	6.3 (15)	18.8 (10)
NM5 Day 1	31.3 (40)	4.2 (5)	41.7 (40)	5.2 (5)	1.0 (0)	4.2(5)	12.5 (5)
NM5 Day 2	57.3 (60)	5.2 (0)	10.4 (30)	7.3 (0)	0.0 (0)	4.2 (5)	15.6 (5)
NM6 Day 1	2.1 (5)	26.0 (25)	40.6 (50)	8.3 (5)	0.0 (5)	8.3 (5)	14.6 (5)
NM6 Day 2	17.7 (40)	17.7 (15)	41.7 (25)	2.1 (5)	0.0 (5)	4.2 (0)	16.7 (10)
NM7 Day 1	39.6 (28)	0.0 (20)	12.5 (20)	9.4 (15)	4.2 (10)	12.5 (5)	21.9 (2)
NM7 Day 2	45.8 (32)	2.1 (12)	29.2 (50)	5.2 (0.8)	0.0 (0)	0.0 (0.2)	17.7 (5)
NM8 Day 1	43.8 (45)	2.1 (0)	16.7 (13)	2.1 (5)	1.0 (2)	18.8 (30)	15.6 (5)
NM8 Day 2	32.3 (10)	0.0 (10)	14.6 (30)	9.4 (10)	1.0 (5)	25.0 (30)	17.7 (5)

The distributions of observed and self-reported activities are displayed graphically in Figure 8. It is apparent that while most sets of distributions were similar, observed and self-reported percentages for clinical and personal activities appeared quite different.

Figure 8. Observed and Self-Reported Activities (N=1518)



* ° are outliers

Summaries of the observed and self-reported activities percentages, as well as the absolute difference between the two, are detailed in Table 15. The median differences in observed and self-reported scheduled meetings, unscheduled meetings, desk work, telephone, and rounds activities were close to zero indicating that there was not much difference between

the observed and self-reported activities when observed or self-reported. None of those differences were statistically significant ($p > .05$). Differences between the two methods of collecting the information were statistically significant for clinical activities and personal activities ($p = .002$ and $p = .001$, respectively). Nurse managers were observed performing clinical activities less than they self-reported performing clinical activities (Median difference = -5.0%, max = 20%). To the contrary, nurse managers were observed performing personal activities a higher percentage of the time than they self-reported personal activities (Median difference = 10.1%; max = 19.9%).

Table 15. Summaries of Observed and Self-Reported Activities (% Time Spent), as well as Differences Between Them (N=1518)				
Activity	**Observed Median [IQR] min, max**	**Self-Report Median [IQR] min, max**	**Difference Median [IQR] min, max**	***p*-value**
Scheduled Mtg (N=428)	31.8 [13.8-39.0] 0.0, 57.3	24.0 [11.3-40.0] 5.0, 60.0	-0.2 [-6.0-11.2] -22.3, 22.3	.737
Unscheduled Mtg (N=146)	5.7 [2.1-15.9] 0.0, 31.3	13.5 [5.0-23.8] 0.0, 26.0	-0.4 [-10.0-2.6] -20.0, 5.3	.233
Desk Work (N=430)	29.7 [14.8-41.7] 10.4, 55.2	30.0 [16.3-40.0] 10.0, 50.0	-1.9 [-8.9-10.9] -20.8, 22.3	.756
Telephone (N=90)	5.5 [2.1-9.1] 0.0, 14.6	5.0 [2.1-6.5] 0.0, 15.0	0.5 [-2.3-3.1] -5.6, 7.6	.438
Clinical (N=19)	0.0 [0.0-1.0] 0.0, 9.4	5.0 [2.8-10.0] 0.0, 20.0	-5.0 [-8.2-(-0.7)] -20.0, 1.0	.002*
Rounds (N=170)	11.6 [4.7-16.4] 0.0, 25.0	10.0 [5.0-22.5] 0.0, 30.0	-0.5 [-7.1-4.0] -11.3, 13.5	.569
Personal (N=235)	16.1 [12.8-19.5] 4.2, 24.5	5.0 [5.0-9.4] 2.0, 10.0	10.1 [6.2-12.7] -5.8, 19.9	.001*
*p < .05; statistically significant				

Intraclass correlations for the same sets of data are presented in Table 16. Consistent with the finding above, statistically significant agreements were observed for scheduled meetings, unscheduled meetings, desk work, telephone, and rounds (r_{ic} = 0.72-0.83, $p < 0.01$). To the contrary, agreement was considerably lower and not statistically significant for activities in the categories of clinical (r_{ic} = 0.29) and personal (r_{ic} = -0.05).

Table 16. Intraclass Correlation Coefficient results of Observed versus Self-Reported Activities (N=1518)		
Activity	**Intraclass Correlation**	***p*-value**
Scheduled Meetings	0.76	.000*
Unscheduled Meetings	0.77	.003*
Desk Work	0.74	.007*
Telephone	0.72	.009*
Clinical	0.29	.256
Rounds	0.83	.001*
Personal	-0.05	.537
*$p < .05$; statistically significant		

CHAPTER V

DISCUSSION

Chapter V includes a discussion and interpretation of the study results organized by study aim. The significance of the findings as they relate to previous research, study strengths and limitations, implications for nursing and recommendations for future research are provided.

Discussion of the Aims

Aim 1: To identify the work activities performed by the nurse manager, where the activities are performed, and with whom the nurse manager interacts when performing the activities.

During the two-day observation period, the eight nurse managers spent a median 61.5 percent of their time in either scheduled meetings (median=31.8%; IQR = 13.8-39.0) or desk work (median=29.7%; IQR = 14.8-41.7). An approximate median of 67 percent of the nurse manager's overall activities took place in either the manager's office (median = 47.8%; IQR = 42.1-64.8) or meeting room (median = 19%; IQR = 13.5-30.3). The nurse manager performed work activities most frequently alone (median = 37.5%; IQR = 34.5-46.4) and with a subordinate nurse (median = 26.8%; IQR = 22.3-37.1). Desk work activities occurred in the nurse manager's office and, most frequently, occurred alone.

Portions of these findings were similar to those reported by Swedish researchers (Arman, Dellve, Wickstrom, and Tornstrom, 2009). The purpose of the Swedish study was to explore and describe how first- and second- line health care managers used their time. The study sample included ten health care managers (described as 4 nurses, 2 midwives, 2 social workers, and 2 physicians). The researchers observed the managers for a 3.5-4 day work period and collected an average range of observations from 25-111 per day. A direct comparison could not be made with the U.S. study detailed herein because the health care managers in the Swedish study were not exclusively nurses, and the Swedish study location was outside of the United States (U.S.). However, because the Swedish study was the only known published study examining nurse manager work activities, understanding the similarities and differences between the Swedish study's findings and this current nurse manager work activity study was beneficial.

Nurse Manager Activities

Researchers from the Swedish study (Arman, Dellve, Wickstrom, and Tornstrom, 2009) found managers in their study spent an average proportion equal to 40% of their time in scheduled meetings (range 23-73), 30% in desk work (range 10-49) and 19% in unscheduled meetings (range 2-32). Telephone, tours (rounds), and transportation activities combined, accounted for the final ten percent of total managerial activities. A proportion of other activities were presented by the authors in tabular form without further description in text: clinical work (9%; range 0-38), breaks (12%; range 4-17), and private (0%; range 0-1). Because the Swedish study's primary activities (scheduled meetings, unscheduled meetings, desk work,

telephone, tours, and transportation) totaled 100 percent in aggregate, it was unclear how the Swedish researchers coded these three, latter secondary activities.

Findings from this current, nurse manager work activity study supported some findings from Arman et al. (2009). For example, the first and second most frequently observed activities in the U.S. nurse manager activity study were desk work (N=430; median percent = 29.7; range 10.4-55.2) and scheduled meetings (N=428; median percent = 31.8; range 0.0-57.3). Unscheduled meetings occurred less frequently in the U.S. nurse manager study (N=146; median percent = 5.7; range 0.0-31.3) compared to the Swedish study (19%; range 2-32). As expected, clinical work was observed more frequently in the Swedish study based on the heterogeneous manager sample which included subjects with clinical responsibilities.

It was not surprising that nurse managers spent more than half of their time performing desk work activities and attending meetings, but it was interesting to note the wide variability among the nurse managers in those two activities. During the data collection period the PI's impression was a lot of time was spent at the computer writing and responding to email. It would be interesting to note the nature of the email activities. It would also be interesting to know if performing desk work activities and attending meetings were associated with better patient outcomes.

Activity Locations

Locations in the Swedish study were recorded in the same manner as the current U. S. nurse manager study. The researchers of the Swedish found that the managers spent an average proportion equal to 31% of their time in the manager's office (range 9-46), 26% away

from the organization (range 0-57), 20% in a conference or board room (range 1-58), and 18% in a hall or production area (range 1-45). Based on the location ranges, considerable variability existed among managers as to where they performed their activities. This is not surprising given the sample was made up of different types of managers.

In the current, U.S. nurse manager activity study, less variability existed in the managers' locations. The four most observed locations for the nurse managers were the nurse manager office (N=789; median percent = 47.8; range 34.4-64.8), meeting room (N=319; median percent = 19.0; range 9.9-36.5), off unit walking (N=93; median percent = 6.0; range 0.0-14.1), and hallway (N=80; median percent = 4.4; range 1.6-12.0). The Swedish location, "away from the organization," and the nurse manager study location, "off unit walking," may be related. In both studies, managers were away from their immediate clinical setting for the "away from the organization" and "off unit walking" designations. If these two designations are synonymous, the top four locations for each study were similar.

Given the two most frequently performed nurse manager work activities were desk work and scheduled meetings, it is not surprising that the nurse manager was most frequently observed in the nurse manager's office or a meeting room. Years ago, management by walking around was considered an enlightened management practice. This study's findings suggest that walking around the nursing unit is not frequently performed by the nurse manager, and therefore may not be regarded as an ineffective use of the nurse managers time. Rare exceptions were discovered. For example, one observed nurse manager explained she followed the intentional rounding literature closely and made intentional rounding part of her daily routine. During each observation day, this nurse manager visited each patient on her unit.

While in the room she discarded old beverages, untangled phone cords and wires and repositioned the phone and call light so that they were within the patient's reach, moved furniture to provide an unobstructed walking path for the patient, and answered questions. This nurse manager demonstrated further evidence that there may be distinct styles as to how nurse managers perform their work.

People with Whom the Activities Take Place

Both studies recorded the people with whom the managers performed their activities. Researchers of the Swedish study found the managers spent an average proportion equal to 44% of their time with their subordinates (range 24-71), 32% with their peers or co-manager (range 17-51), 17% with a client or associate (range 0-51), seven percent independent and others (range 1-25), and zero percent with their superiors (range 0-3). Again, variability in persons with whom the Swedish health care managers perform activities was observed and is likely because of the varied manager sample.

The most frequently observed persons in the U.S. nurse manager study were alone (independent) (N=611; median percent = 37.5; range 33.9-52.3), subordinate nurse (N=432; median percent = 26.8; range 16.1-39.1), mixed group more than five people (N=120; median percent = 7.0; range 0.0-16.7), peers (N=142; median percent = 9.5; range 0.0-22.4), superior (N=31; median percent = 0.8; range 0.0-9.4), and patient / family (N=31; median percent 0.3; range 0.0-9.4). The most frequently observed type of persons with whom the managers performed their activities were similar, but there were differences in the proportion of time for each person type. The starkest difference was the extent to which the managers in each study

acted alone or independently. Managers in the nurse manager activity study were observed more frequently performing activities alone (37.5%) compared to the Swedish study (7%). In both studies the managers had minimal interaction with their supervisor.

It was no surprise study results revealed nurse managers performed most work activities alone. Nor was it surprising a subordinate nurse was the second most frequently occurring person with whom the nurse manager interacted. Again, there seems to be wide variability among the nurse managers as to time spent alone and with a subordinate nurse. In future studies we would want to know who these people actually are, and more than just their position title. Does the nurse manager spend more time with senior subordinate nurses or junior nurses? Does the amount of time the nurse manager spends with subordinate nurses, role modeling professional activities, lead to better staff outcomes, such as progression up the clinical ladder, more education, or specialty certification?

Comparison of the nurse manager study with other studies

Because the major activity categories of the nurse manager study were modeled after a previous Swedish study, some comparison with the U.S. study was possible. A direct comparison between the Swedish and U.S. studies could not be made because of the difference in study samples. Results from the Swedish study had more variation in work activities, locations, and persons with whom the manager performed their activities than in the nurse manager study, again likely attributable to the Swedish study's sample. The most similar category in the comparison between the two studies was the activity locations.

Findings from the nurse manager study supported findings from the business literature that the work of managers is varied and interpersonal. The findings also supported the results of other business studies that the most frequently occurring activities were desk work and meetings (Martinko and Gardner 1990). Although the actual time in an activity was not recorded in the nurse manager study, anecdotally, like many other managerial studies, the activities were brief and varied.

The work of the nurse manager was unpredictable and without pattern, and, as with previous business studies, much of the manager's work was spent focusing on issues of the moment. On multiple occasions critical issues or events arose forcing the nurse manager to place their current work activities on hold and move to the critical issue or event. Hence the description from Shirey and colleagues (Shirey, Ebright & McDaniel, 2008) about "putting out fires." Examples of "putting out fires" included listening to and acting on patient complaints, calling security to assist with an escalating family member, management of staff conflicts, trouble-shooting replacement of missing narcotic keys, working to fill multiple staff call-outs on one shift, listening to and validating an emotionally distraught and overwhelmed staff nurse, to name a few.

The management literature was descriptive about how managers spent their time. But no study determined that, manager performance of certain activities would result in better outcomes. So it is impossible to determine whether the way in which the nurse managers spent their time was good or bad in this study. It is neutral and consistent with other management studies, within and beyond health care. One study by Martinko and Gardner (1990) proposed that the work activities of high performing managers would differ from

moderate performing managers. The outcomes of their study did not support that proposal, but the authors did find that environmental and demographic variables were statistically significantly related to activities.

Despite the small number of nurse manager subjects, differences existed in what may be called an activity style or preference from nurse manager to nurse manager. For example, two managers performed more activities in the rounding sub-activity categories of "compliance" or "environmental / supplies" than others. These nurse managers conducted numerous environmental rounds paying particular attention to environmental regulations, ensuring supplies were not stored within twelve inches of the ceiling, checking expiration dates on medical supplies and equipment temperature logs, tagging broken equipment for repair, discarding random papers with patient information and beverages at the nurse's station.

Aim 2: To determine whether there is a relationship between observed nurse manager activities and self-reported nurse manager activities.

Strong, statistically significant correlations ($p < .05$) existed between observed nurse manager activities and self-reported activities in five of the seven activity categories (scheduled meetings ($r_{ic} = 0.76$); unscheduled meetings ($r_{ic} = 0.77$); desk work ($r_{ic} = 0.74$); telephone ($r_{ic} = 0.72$); and rounds ($r_{ic} = 0.83$). Observations and self-reports of clinical ($r_{ic} = 0.29$) and personal activities ($r_{ic} = -0.05$) were not statistically significantly related ($p = .256$ and .537, respectively). Of the seven activity categories, the two non-statistically significant activities, clinical and personal, may have been subject to social desirability. The nurse manager may have sensed an obligation to spend more time in clinical activities and less time on personal activities because that may be socially desirable by nurse leaders. With the administrative burden that many of the managers experience, it is unlikely that there was adequate time or even an expectation to perform clinical work.

All of the nurse managers reported having some form of an assistant manager and/or clinical nurse specialist, and worked in organizations with governance structures and clinical ladder programs. With these programs in place, clinical work was managed close to the patient's bedside by senior nurses, assistant managers, and clinical specialists, allowing the nurse manager to manage non-clinical work. We must look at this study's findings in light of the fact that all of the people observed had some form of an assistant manager. Different study findings may have resulted had a nurse manager not had such assistance.

Each manager reported working more than forty hours per week. It is likely that at some time they would have to make a personal phone call, attend an appointment, or other

personal activity during their workday. With the exception of the clinical and personal activity categories, the nurse managers' self-report and the PI's observations were in agreement. To the PI's knowledge, because this was the first study to compare observed and self-reported nurse manager work activity, no previous work exists with which to compare.

Although there were no previous studies that compared nurse manager observed and self-reported activities, one study in the business literature compared self-reported activities of managers and their perceived amount of time of other managers spent in certain activities (Van der Velde, Jansen and Vinkenberg, 1999). In a study of top (N=17) and middle (N=334) managers at a large insurance agency in the Netherlands, researchers found both groups of managers underestimated each other and/or overestimated themselves for some activities. While managers in the nurse manager study did not estimate the time other managers spent in a particular activity, it is curious to note that the managers in the insurance agency study overestimated themselves in certain activities. This may also have been due to social desirability, just as in the nurse manager study. Both groups of managers in the insurance agency study thought the other group spent less time on important activities (developing ideas, planning and decision-making), and more time on unimportant activities than they did. The nurse manager study did not ask the managers to self-report their opinion as to whether an activity was important or not.

Suggestions Based on the Study's Results

This study's findings show that it was feasible to reliably observe nurse managers using work sampling. The findings further support that more than one day of data collection for each nurse manager was feasible. This foundational work provides a basis for which further studies may be designed. The knowledge generated from this study provides a basis for future studies designed to investigate potential linkage between nurse manager activities and patient and staff outcomes. This study found that nurse managers reliably reported their time in certain activities. This new knowledge may help to design future studies. In future studies, using self-report may save study expense, and allow for more nurse managers to be studied for longer periods of time.

The PI was able to capture field notes and artifacts. Additional data were collected during this study. Only data related to the study's aims are presented.

The field notes and the experience of data collection reinforced the thought that organizational culture may influence how the nurse manager performs her work activities. This should be explored in future studies. For example, the top of the organization may impose upon the manager a strong safety culture. It is plausible that this strong safety culture might influence how the nurse manager performs activities, and may place a higher value on certain activities. An example of a cultural influence from the bottom up might be staff nurses participating in a staff perception survey of the professional practice environment, which may include rating their manager in a variety of categories. If one category is nurse manager

visibility and the staff perception surveys are regarded highly in the organization, it is likely the nurse manager will want to perform activities that make him or her visible to the staff nurse.

Challenges to observation include people behaving unnaturally, confidentiality and anonymity protection, and minimizing the impact of study participants (O'Leary, 2005). Despite the desire for people to behave naturally, some participants' behaviors change as a result of being observed. This "Hawthorne effect" is a phenomenon whereby "participants 'improve' their performance while being observed to provide socially acceptable responses" (Westbrook & Ampt 2009, p.S31). The original Hawthorne effect was observed with production workers performing repetitive tasks. It is unlikely that the nurse managers in this study were affected by the Hawthorne effect because managerial work activities are not repetitive and they are largely outside the manager's control. Further, the busy work environment does not lend itself to sustained work practice changes. Therefore, it is unlikely subjects were able to alter their activities for an extended period of time, such as two 8-hour workdays.

Strengths

Foundational Research

There were strengths to this study. First, and foremost, this is foundational work because no prior studies exist to examine the nurse manager's work activities in an acute care setting in the United States.

Design

The intent of this study was to explore the work activities of the nurse manager and the use of a descriptive design to accomplish this was a strength of the study.

Methods

We now know that methodologically, nurse manager activity can be studied and we know that work sampling and direct observation were sound methods. The seven major activity categories were modeled after work from previous studies that examined the activities of managers. This was important because it allowed some comparison to a prior study as outlined earlier in this chapter.

New Methodological Knowledge

The PI concluded that the nurse manager was a reliable source to report the percent of time they spent in scheduled meetings, unscheduled meetings, desk work, telephone, and rounding activities. This new knowledge may help inform future studies deliberating as to whether to use observation or self-report methods.

Limitations

Seasonality of Nurse Manager Work

There were study limitations. First, it was interesting to note that only one observation was made for the desk work sub-activity "evaluation preparation" and no observations for the

scheduled meetings sub-activity "evaluation." Nurse managers at each study site revealed that annual staff evaluations occurred at specific times during the year, and not during the study's data collection period (March 2015 to June 2015). Based on this revelation it may be stated that the nurse manager's work activities in large academic medical hospitals were seasonal. The following activities may be seasonal: annual staff evaluations, annual budget preparation, and popular vacation periods. To mitigate the effects of seasonality on nurse manager work activities, data collection at different times throughout the year is necessary.

Variability of Activities by Day

This was a very exploratory methods study. A nurse manager work activity pilot study in 2013 revealed variation existed in nurse manager work activities from day to day. For example, efforts were made at the pilot study site to schedule nurse manager meetings on Wednesdays. This practice intended to have one heavy meeting day each week so that meetings would not interrupt nurse manager activities on other days. The present study confirmed variation in the work activities from Day 1 to Day 2, most notably in the scheduled meetings and desk work activities. Analysis of unscheduled meetings, telephone, and clinical activities revealed less variation from Day 1 to Day 2. It is important that data collection occur each day of the week, Monday through Friday to capture the effects of variability in nurse manager activities by day.

Inability to Reliably Capture Specific Sub-Activities with Tool

Qualitative detail about how the nurse manager conducted their activities was not completely captured. For each of the seven major activity categories on the Nurse Manager

Activity Tool, there were additional sub-activities listed for the PI to circle. Capture of these data requires additional study. For example, using non-participant observation, it was not always clear what sub-activity was being performed by the nurse manager; because the method was non-participant observation, the PI was unable to ask the nurse manager the exact nature of the activity they were performing. When the nurse manager performed multiple activities, the PI decided which activity was the most prominent at that time. There were few occasions when the nurse manager was typing emails at their desk about vacant shifts on the schedule. The PI needed to decide on the tool whether to circle "email" or "Schedule/staffing" as a sub-activity of desk work. The decision was made to always choose the email option in similar instances as the activity being performed; the nature of the activity was scheduling.

Analysis stopped at the major activity category and did not delve into sub-activities. Some description of the sub-activities was provided for added context. In summary, the seven major activity categories were easily discernable, while identification of the sub-activities posed a challenge. Further refinement of the tool is required and additional methods are needed to capture qualitative data about the nurse manager's work activities.

Inability to capture description of the other nurses

The nurse manager performed many work activities alone or independently. The second most frequently observed person with whom the nurse manager performed work activities was the subordinate nurse. The protocol of this study did not allow for reliable capture of who was included in this group. The PI made notations as to who the subordinate nurse was, but descriptive statistics were not generated. Anecdotally, the subordinate nurse

appeared to be the assistant unit director (clinical nurse leader), followed by the charge nurse, and staff nurse. Further refinement of the tool is required or additional methods are needed to capture qualitative data about who the subordinate nurses are.

Inability to Capture Field Notes at All Times

Field notes were not reliably captured during sensitive discussions. For example, on two occasions the nurse manager conducted a closed door meeting and asked the PI to leave the nurse manager office. One instance was to provide feedback to a staff nurse and the other involved a confidential telephone conversation with human resources. The PI was able to code the major activity in the first example as an unscheduled meeting with "constructive feedback" as the sub-activity. In the second example, telephone was the major activity category and "Other: human resources" as the sub-activity. Field notes were missed on these two occasions when the PI was asked to stop direct observation. In order to understand the nature of what transpires during sensitive conversations, another method for collecting data may be considered, such as nurse manager self-report (as long as activity is not personal or clinical) or a diary.

Small Sample

The study's sample consisted of more nurse managers than the Swedish study, however the sample size is small and generalization beyond nurse managers in a large academic medical institution on general care units is not possible. It is suggested that future studies examine more nurses in different types of care units and hospitals.

Analysis Limitation

A final limitation was the analysis of activities performed by day. Given the previously mentioned anecdote about the conscious effort to schedule nurse manager meetings on Wednesdays at one of the study sites, analysis was not performed to determine how many observation days occurred on Wednesdays and more importantly, if those Wednesdays were exclusively on Day 1 or Day 2. The sample was too small to compare work activities by day of the week. A larger study with more nurse managers and days of observations may address this limitation.

Recommendations for Future Research

Examine any links between nurse manager activities with patient and staff outcomes

With feasibility to collect nurse manager work activities, their locations, and with whom they perform their activities proven, future research may examine if there were patterns that emerged from the nurse manager's work activities, and if these patterns had a relationship with patient or staff outcomes. Nurse managers autonomously manager their nursing unit, building their team and influencing the work environment. In a recent study by McHugh and Chenjuan (2013), the researchers wanted to determine the relationship between nurse work environment, nurse staffing levels, and nurse education with 30-day readmissions among Medicare patients with heart failure, acute myocardial infarction, and pneumonia. Findings from the study revealed that patients who received care from a hospital with a good versus poor work environment were associated with odds of readmission that were 7% lower for heart

failure (OR = 0.93; CI, 0.89-0.97), 6% lower for myocardial infarction (OR = 0.94; CI, 0.88-0.98), and 10% lower for pneumonia (OR = 0.90; CI, 0.85-0.96). It is plausible that a certain pattern of work activities could be indicative of a good work environment, thereby contributing to better patient outcomes.

Investigate the existence of activity patterns

To further investigate the concept of work patterns, future studies may choose to examine if a certain set of activities with certain people follow each other. A future study may explore if certain activities are known to cluster from one day to the next or seasonally. To produce these data it is suggested the sample of future studies needs to be larger, and additional days of observation, at different times of the year, are recommended. More than two days are needed, but unresolved as to how many are optimal.

Consider using continuous observation to explore nurse manager activities

Prior studies have used continuous observation to determine the actual time spent in various activities. Future studies may consider this method for the nurse manager population. The Swedish study found time in activities was of short duration. It may be useful to know if the U.S. nurse manager's work consists of activities of short duration. If so, this may signal that the nurse manager is frequently interrupted and it may be helpful to know this.

Consider using self-report or mixed methods to explore nurse manager activities

The findings of this study revealed that nurse managers can reliably self-report their activities in the following categories: scheduled meetings, unscheduled meetings, desk work, telephone, and rounding. Future studies may consider using non-participant observation with self-report for a period of time during which it is determined that the self-reported activities are reliable, and the observations and self-report are correlated. After the two methods have been correlated, the nurse manager may then be able to capture additional data for an extended period of time using self-report.

During the time the nurse manager is recording work activities using self-report, the PI might delve into additional data collection that further describes the activities. For example, the PI might be able to explore what the actual activities are during email work, what activities the nurse manager delegates and to whom, and who does the nurse manager communicate with and what is the nature of the communications, to name a few.

Determine if a nurse manger activity may be delegated

We should also determine how often nurse managers execute activities themselves that can be delegated per organizational policy and procedure, and the reason the nurse managers persist in doing the activity themselves. For example, telephoning nurses to fill a vacant shift is an activity that does not require the nurse manager's educational or experiential background to perform. This activity could be delegated to a subordinate nurse or non-nurse. If nurse managers were self-reporting their activities they may add their perception as to whether another role group could perform that activity.

Explore the impact of organizational culture on nurse manager activities

As noted, the study findings exhibited wide variability among the nurse managers in the activities they performed. For example, one nurse manager performed intentional rounding each day. In addition to differences among the nurse managers, differences existed between the two study sites, suggesting an organizational cultural component to how the nurse manager performed their activities. For example, at one of the study sites, the nurse managers spent more time performing desk work activities, and less time on clinical, rounding, and scheduled meeting activities than the other study site. The types and frequencies of activities may be influenced by the organization's culture or environment. To further explore this concept, it may be important to examine nurse levels above and below the nurse manager.

Implications

Based on the preliminary nature of this study, making recommendations for policy, education, and practice would be premature. The implications from this study are exclusively research. This study was a methodological study to see if it could be done, and it can be done, reliably. Perhaps the most significant contribution of this study was the finding from Aim 2. The findings from this study support the notion that perhaps we can ask nurse managers how they spend their time in five activities (scheduled meetings, unscheduled meetings, desk work, telephone, and rounds). Future studies examining the nurse manager's work activities in the scheduled meetings, unscheduled meetings, desk work, telephone, or rounds categories may be able to rely on self-report rather than perform the cumbersome, lengthy, and potentially

costly method of direct observation. The PI found these activities (self-report and observed) were statistically significant correlation. This adds to the knowledge that self-report is acceptable for certain activities.

Now that this preliminary work has been done and we know that it is feasible to capture the work activities, locations of those activities, and persons with whom those activities occur, we may be able to explore a relationship between what and how the nurse manager performs his or her work and selected patient and staff outcomes. For example, if patterns were to emerge in a larger study, leading to a correlation between those patterns and patient and staff outcomes, tremendously beneficial change may occur.

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APPENDIX A

Initial Contact with Study Site

To: Hospital CNO
From: Amanda Stefancyk
Subject: Request to Conduct Nursing Research at Your Hospital

Dear CNO,

Greetings. My name is Amanda Stefancyk and I work locally in downtown Chicago, as well as being enrolled as a full-time PhD student at Vanderbilt University School of Nursing (Nashville, TN), on a Health Services Research track.

I am contacting you to briefly explain my proposed research and to explore collecting data at your organization. I know that there are many gatekeepers to field these requests, please feel free to point me in the right direction if you are not the appropriate contact. Briefly, my phenomenon of interest is examining the work activities performed by the general medical / surgical nurse manager (unit director) and my research aims are: AIM 1) what are the activities performed by the nurse manager; where are these activities performed; and with whom do the activities take place, and AIM 2) is there a correlation between observed nurse manager activities and self-reported nurse manager activities?

My goal is to observe a convenience sample of 8 nurse managers, from two hospitals, for two work days. It is my hope that I am able to observe a portion of the 8 nurse managers at your organization. The study protocol does not require me to enter any patient room and I have attached a description of the study for your review. I have successfully completed the IRB process at Vanderbilt University (IRB# 141779 – Exempt) and I am prepared to go through your IRB process.
My program advisor and committee chair is Ann Minnick PhD, RN, FAAN. My dissertation committee members include Drs Mary Dietrich, Peter Buerhaus, and Christine Kovner.

Thank you for considering this request; I look forward to hearing from you.

Sincerely,
Amanda Stefancyk Oberlies MSN, MBA, RN, PhD (c)
Vanderbilt University SON
Amanda.stefancyk@vanderbilt.edu

APPENDIX B

Initial Communication to Nurse Manager Requesting Study Participation

TO: Medical/Surgical Nurse Managers
FROM: Amanda Stefancyk
SUBJECT: Nurse Manger Activity Study - Invitation

Dear Colleague,
I would like you to participate in a study. I am a student pursuing a research doctorate degree at Vanderbilt University School of Nursing, Nashville, TN, in the field of Health Services Research. My dissertation study examines the work activities performed by nurse managers, the locations of these activities, and the persons with whom these activities take place. Such a study has not been performed in decades making it important to describe the activities performed by today's nurse manager.

Your participation would involve:

- Allowing the researcher to shadow you for 8 hours on two workdays (convenient to you)
- A short interview (10-15 minutes) about you and the unit you manage
- One-item survey about your perception of the time you spend in 7 different activities at the end of both days. It is estimated this will take you 1 minute to complete

Great care will be taken to not disrupt your work. I will be a non-participant observer. Your participation, identity, and organization will be kept confidential to everyone except me. The data collected from this study will be stored on a password protected, encrypted computer and destroyed one year after the completion of the study. All data collected will be reported in aggregate as an added effort to not identify any individual participant. You may choose to leave the study at any time without penalty. Institutional Review Board (IRB) permission has been obtained at both Vanderbilt University and your organization.

The study results will be submitted for publication in a peer-reviewed journal. This is estimated to take place in one year. **To participate in the study, please contact me at amanda.stefancyk@vanderbilt.edu or (312) 422-2813. The observation will take place at convenient time for you and may be scheduled from May-June.** If you have any questions, please do not hesitate to contact me at amanda.stefancyk@vanderbilt.edu or my PhD advisor, Ann Minnick PhD, RN, FAAN, at ann.minnick@vanderbilt.edu or (615) 343-7618.

Thank you for your time and consideration.

Sincerely,
Amanda Stefancyk MSN, MBA, RN, PhD (c)
Doctoral Candidate,
Vanderbilt University School of Nursing

APPENDIX C

Study Description

Study Background, Design, and Aims

The nurse manager is critical to the operation of an effective nursing unit. Detailed understanding of the work performed by the nurse manager (defined as work activities, where these activities occur, and with whom the activities are accomplished) is unknown.

Other studies have examined the effect of the nurse manager role (not activities) on patient outcomes. Only two studies have examined nurse manager activity and each had significant limitations such as low numbers of subjects from a single institution and European settings. This dissertation study seeks to explore the work activities of the nurse manager, because without such a description of the nurse manager role, further research examining the impact of the role on patient and staff outcomes is delayed.

Based on results of a pilot study, this descriptive study's aims are twofold: 1) to describe the activities performed by the nurse manager, where the activities take place, and with whom the activities occur, and 2) to determine if there is a correlation between observed nurse manager activities and self-reported nurse manager activities.

Fast Facts

Study Subjects and Location

- A convenience sample of 8 nurse managers (a registered nurse holding the title of nurse manager in an acute care hospital and having 24-hour accountability of at least one inpatient unit).
- Location: General medical / surgical unit where nurse manager has direct supervisory and evaluative responsibility for unit-based staff located within three urban, academic medical centers located in Chicago, Illinois.

Inclusion Criteria

- Current employment as a nurse manager on a general medical/surgical unit
- A minimum of one year of managerial experience, and a scope that includes one or two inpatient units.

Exclusion Criteria

- Serving as a preceptor for another nurse manager during the observation period because the preceptor's role may vary greatly.

Subject Recruitment

- The Chief Nurse or other designee will provide the names and contact information of medical/surgical nurse managers.
- The PI will contact the nurse manager to introduce herself, gauge interest, and potential dates to meet. Upon meeting the nurse manager the PI or data collector will explain the purpose of the study, explain potential risks and benefits, answer any questions, and obtain informed consent. After informed consent is obtained data collection will commence.

Methods

Using non-participant observation and work sampling, the data collector will gather nurse manager activity data by shadowing the nurse manager for 8 hours (collecting 12 randomly-timed observations per hour), during two work days. The data collector will observe and record activities performed by the nurse manager, the location of the activity, and persons (by role, not name) with whom he/she interacts. These steps will be repeated at each data time collection. At any time during the day the nurse manager may ask the data collector to stop data collection. In addition to the collection of activity data, field notes will be taken and artifacts (for example, a "to-do" list) will be collected to provide additional context to how the nurse manager performs his/her activities.

- At the end of the first data collection day, the data collector will conduct one 10-15 minute interview to gather descriptive about the nurse manager and the unit.
- At the conclusion of data collection day one and two, the data collector will administer a one-minute activity self-report form.
- The data collector will strive not to disrupt or interfere with nurse manager workflow.
- No patient data will be collected.
- The data collector will not enter any patient room.
- Data collector will take restroom and meal breaks when the study subject takes a break.
- Data collection will be suspended during a day in which a regulatory visit occurs.

Human Subjects Protection

- Participants may fear their work activities may be disclosed to their superior. This potential risk is mitigated by *not* informing the Chief Nurse and/or designee of participation status and names of study participants. The PI, to further protect the participating nurse managers, will keep a codebook. An assigned code will be the only link between the nurse manager and the data collection tools. There is no risk of physical harm to participants, and study participants will be notified verbally and in writing that they are free to leave the study at any time without penalty. It is believed there are no direct benefits to study participants except for the fact that the information gathered may help inform the knowledge of nurse managerial work. With self-

reflection, subjects may achieve greater awareness of what activities they perform as a result of participation. Study participants will not be compensated for their time. This study has been approved by the Vanderbilt University IRB and, as desired by the institution, any other IRB approvals will be obtained before data collection begins.

- Data will be aggregated and analysis performed using descriptive statistics including frequencies and percentages.
- It is unlikely that any sensitive information will be collected. Once the data are transcribed electronically, they will be stored on a password-protected, encrypted computer. The participant's name will not be linked to any data (electronic or paper copy). Original paper copies will be kept in a locked file cabinet for a minimum of two years and then destroyed.

The Principal Investigator

- Amanda Stefancyk RN, MSN, MBA, CENP, PhD (c), is in her fourth year of Vanderbilt University's School of Nursing doctoral program and has successfully defended her dissertation proposal. Further, the PI has knowledge of the proposed methods and previous nurse manager work experience at a large academic hospital setting. Ann Minnick PhD, RN, FAAN is the PI's advisor and will mentor her throughout the study.

Benefits for Your Organization

- Aggregated, de-identified overall data from the study will be shared with you, if desired. The PI will meet with designees to talk about overall results if desired.

If you have any questions, please do not hesitate to contact me at amanda.stefancyk@vanderbilt.edu or my PhD advisor, Ann Minnick PhD, RN, FAAN, at ann.minnick@vanderbilt.edu or (615) 343-7618.

APPENDIX D

Nurse Manager Activity Structured Observation Tool

Activity				
Date Time	Scheduled meetings	Unscheduled meetings	Desk work	Telephone
	RN staff meting Info to NM Info from NM Shift report RN evaluation Perform. management Interview Orientation Positive feedback Constructive feedback Termination Coach/mentor Sched/staffing Other_____	RN staff meeting Info to NM Info from NM RN evaluation Perform. management Interview Orientation Positive feedback Constructive feedback Termination Coach/mentor Sched/staffing Other_____	Bed manage Sched/staffing Budget Payroll Quality/safety Incident report Perform manage Evaluation prep Meeting prep Email Clerical Other_____	Pt/family com Team communication Staff communication Bed management Sched/staff Quality/safety Budget Questions /network Other_____

Clinical	Rounds	Personal
Communication w pt/family Communication w team Communication w nurse Emergency Clinical consult Coach/mentor Education Positive feedback Constructive feedback Compliance Quality / safety Patient care Other_____	Bed management Scheduling / staffing Coach/mentor Education Positive feedback Constructive feedback Coach / mentor Relationship building Pt / family communication Environmental support RN support Compliance Quality / safety Patient care Other_____	Break Meal Restroom Personal communication Walking Waiting Other_____

Person	Location
Subordinate nurse	Nurse manager office
Subordinate other	RN station
Peer / NM	Hallway
Superior	Meeting Room
Patient / Family	Patient Room
Interdisciplinary team other	Cafeteria
Support staff	Restroom
Mixed group >5	Superior Office
Human resources	Off Unit Walking
MD / NP interdisciplinary	Other_____
Other_____	

APPENDIX E

Nurse Manager Activity Structured Observation Tool - Definitions

Abbreviation on activity tool	Complete activity	Definition
Scheduled Meeting		
RN staff mtg	Nurse staff meeting	Meeting in which majority of attendees are staff nurses on the unit
Info to NM	Information to the nurse manager	Meeting in which a majority of information is flowing to the nurse manager. An informational meeting
Info from NM	Information from the nurse manager	Meeting in which a majority of information is flowing from the nurse manager. The nurse manager is sharing his/her knowledge on a topic(s)
RN evaluation	Nurse evaluation	Meeting in which nurse manager is discussing evaluation with nurse employee
Perform manag	Performance management	Meeting in which the nurse manager is providing counsel to a nurse or other staff member about their performance
Interview	Interview	A formal meeting in which the nurse manager is considering an applicant for employment on the nursing unit

Orientation	Orientation	Meeting to discuss the plan to bring a new employee onto the nursing unit
+ feedback staff	Positive feedback to staff	Meeting in which positive feedback is shared with the employee
Cons feedback	Constructive feedback to staff	Meeting in which negative feedback is shared with the employee with the intent to make the employee more successful
Termination	Termination	Meeting in which the employee is separated from the nursing unit
Coach/mentor	Coach/mentor	Meeting in which goal is to help make employee more successful on the unit, in career, or other
Unscheduled Meeting		
RN staff meeting	Nurse staff meeting	Meeting in which majority of attendees are staff nurses on the unit
Info to NM	Information to the nurse manager	Meeting in which a majority of information is flowing to the nurse manager. An informational meeting.
Info from NM	Information from the nurse manager	Meeting in which a majority of information is flowing from the nurse manager. The nurse manager is sharing his/her knowledge on a topic(s).

RN evaluation	Nurse evaluation	Meeting in which nurse manager is discussing evaluation with nurse employee
Perform manag	Performance management	Meeting in which the nurse manager is providing counsel to a nurse or other staff member about their performance
Interview	Interview	A formal meeting in which the nurse manager is considering an applicant for employment on the nursing unit
Orientation	Orientation	Meeting to discuss the plan to bring a new employee onto the nursing unit
+ feedback staff	Positive feedback to staff	Meeting in which positive feedback is shared with the employee
Cons feedback	Constructive feedback to staff	Meeting in which negative feedback is shared with the employee with the intent to make the employee more successful
Termination	Termination	Meeting in which the employee is separated from the nursing unit
Coach/mentor	Coach/mentor	Meeting in which goal is to help make employee more successful on the unit, in career, or other
Desk Work		

Bed manag	Bed management	Managing patient beds; admission, transfer, discharge, occupancy, closures
Sched / staff	Scheduling / staffing	Managing the schedule for the current day, or future; filling staffing holes, downsizing
Budget	Budget	Analysis, construction of the nursing unit budget, variance reporting
Payroll	Payroll	Entering, correcting staff time in order for the staff to be compensated
Qual / safety	Quality and Safety	Work performed at desk involving topic of quality and safety
Incident report	Incident report	Work performed at desk on incident report, filing new, follow-up, root cause analysis, report, trending, closure
Perform manag	Performance management	The act of documenting a subordinate's performance
Eval prep	Evaluation preparation	The act of preparing the written portion of a subordinate's evaluation
Mtg prep	Meeting preparation	Research, documenting, agenda composition for a meeting
Email	Email	Composing new or responding to received electronic mail
Clerical	Clerical	The act of typing meeting minutes, creating form letters, data entry

Telephone		
Pt / fam comm	Patient/ family communication	Telephone communication with the patient or family about care provided, other
Team comm	Team communication	Telephone communication with interdisciplinary team members
Staff comm	Staff communication	Telephone communication with staff about schedule, payroll, unit operations, announcements
Bed manage	Bed manage	Via telephone, managing inpatient beds; admission, transfer, discharge, occupancy, closures
Sched / staff	Scheduling / staffing	Via telephone managing the schedule for the current day, or future; filling staffing holes, downsizing
Qual / safety	Quality / safety	Work performed via telephone involving topic of quality and safety
Budget	Budget	Analysis, construction of the nursing unit budget, variance reporting via telephone
Question / netw	Question / networking	Reaching out to colleagues via telephone to ask/answer question
Clinical Work		

Comm w pt/family	Patient/ family communication	Communication with patient and or family about care provided, plan of care, compliments, complaints
Comm w team	Team communication	Communication with care team (non-RN) about patient care, plan of care, regulatory compliance, patient bed disposition
Comm w RN	Staff communication	Communication with the nurse about patient care, plan of care, regulatory compliance, patient bed disposition
Emergency	Emergency	Participation in patient / staff emergency
Clin consult	Clinical consult	Clinical discussion about patient's plan of care
Coach / mentor	Coach / mentor	Discussion to help make employee more successful on the unit, in career, or other
Education	Education	The act of providing new knowledge to another team member
+ feedback staff	Positive feedback to staff	The act of providing positive feedback to the staff
Cons feedback	Constructive feedback to staff	Meeting in which negative feedback is shared with the employee with the intent to make the employee more successful
Compliance	Compliance	The act of maintaining regulatory compliance

Qual / safety	Quality / safety	Activity focused solely on quality and safety
Rounding		
Bed manage	Bed management	Managing inpatient beds; admission, transfer, discharge, occupancy, closures
Schedule / staff	Schedule / staff	managing the schedule for the current day, or future; filling staffing holes, downsizing
+ feedback staff	Positive feedback to staff	The act of providing positive feedback to the staff
Cons feedback	Constructive feedback to staff	Meeting in which negative feedback is shared with the employee with the intent to make the employee more successful
Coach / mentor	Coach / mentor	Discussion to help make employee more successful on the unit, in career, or other
Education	Education	The act of providing new knowledge to another team member
Relationship buil	Relationship building	Communicating with team member for the purpose of maintaining/improving relationship
Pt/fam comm	Patient/ family communication	Communication with patient and or family about care provided, plan of care, compliments, complaints

Compliance	Compliance	The act of maintaining regulatory compliance
Qual / safety	Quality / safety	Activity focused solely on quality and safety
Environment / sup	Environment / support	Examining environment and equipment for safety concerns and regulatory compliance
Personal		
Break	Break	Period of time in which formal work is placed aside for personal recharge
Meal	Meal	Time in which meal is consumed
Restroom	Restroom	Time in which nurse manager uses restroom
Personal comm	Personal communication	Time in which communication (email, telephone, face-to-face) is personal and not work-related
Person		
Alone	Alone	The nurse manager
Subordinate RN	Subordinate nurse	Staff nurse
Subordinate	Subordinate non-nurse	Unit employee non-nurse, such as nurse's aide
Superior	Superior	Nurse manager's boss, or other superior

Inter. Team other	Interdisciplinary team other	Other professional discipline such as social work, nutrition, therapies Not MD or NP
Support staff	Support staff	Clerical or housekeeping staff member
Mixed group	Mixed group	Mixed group. More than 5 people of different disciplines
HR	Human resources	Human resource employee
MD/NP interdis	Physician/ nurse practitioner interdisciplinary	Physician and nurse practitioner, residents, fellow, students
Location		
NM office	Nurse manager's office	Nurse manager's office
RN station	Nurse's station	Nurse's station
Hallway	Hallway	Hallway
Meeting rm	Meeting room	Meeting or conference room
Patient rm	Patient room	Patient room
Off unit walk	Off unit walking to/from	In route to/from meeting, office, nursing unit

APPENDIX F

Nurse Manager Questionnaire*

NM Code:_____	
Day 1	Day 2

1. Nurse manager identification code:
2. Description of unit:
3. What is the number of operating beds?
4. What is the unit's occupancy rate today?
5. What is the unit's budgeted occupancy rate?
6. What are the shift patterns worked by nurses on the unit?
7. What is the predominate pattern of hours worked by nurses on this unit?
8. What is the total number of RN staff that you supervise?
9. What is the total number of RN FTEs that you supervise (budgeted v. actual)?
10. What number of RN staff do you supervise that have been employed on this unit for < 1 year?
11. What is the total number of LPN/LVN staff that you supervise?
12. What is the total number of LPN/LVN FTEs staff that you supervise (budgeted v. actual)?
13. What number of LPN/LVN staff do you supervise that have been employed on this unit for < 1 year?
14. What is the total number of PCA/NA/Other staff that you supervise?
15. What is the total number of PCA/NA/Other staff FTEs that you supervise (budgeted v. actual)?
16. What number of PCA/NA/Other (Specify) staff do you supervise that have been employed on this unit for < 1 year?
17. Do you supervise unit-based personnel who perform stocking?
18. Do you supervise unit-based personnel who perform cleaning?
19. Do you supervise unit-based personnel who perform hospitality services?
20. Do you supervise unit-based personnel who perform direct admissions?
21. Do you supervise unit-based personnel who perform transport?
22. Do these personnel also perform nursing activities?
23. Is there an assistant manager on the unit?
24. Is there a unit service manager?
25. If yes, what are the titles of these workers?
24. How many medical directors are there for this unit?
25. How many physicians have patients on this unit today?
26. Is this a typical number?
27. If no for #26, what is a typical number?
28. How many teams of residents are assigned to this unit?
29. How many residents / fellows have been on the call schedule in the past month?
30. Based on our last available report, how many hours were paid to temporary / float personnel in the last month?
31. Based on your last available report, how many hours were paid for overtime in the last month?
32. Approximately what percent of the nursing staff hold a BSN degree or higher?
33. In the past month, based on the most recently available report, how many hours of nursing care were provided per patient day?
34. In the past month, based on the most recently available report, how many hours of care were budgeted?
35. How is the budget determined?

36. If a ratio system is used, what is the RN to patient ratio used on day shift?
37. If a ratio system is used, what is the RN to patient ratio used on night shift?
38. If LPN/LVN staff, what is the ratio used on day shift?
39. If LPN/LVN staff, what is the ratio used on night shift?
40. If PCA/NA/Other staff, what is the ratio used on day shift?
41. If PCA/NA/Other staff, what is the ratio used on night shift?
42. During the past year, has the unit experienced an expansion in bed size?
43. During the past year, has the unit experienced a decline in bed size?
44. During the past year, has the unit experienced a physical move?
45. During the past year, has the unit experienced extraordinary event?

The next items are about your preparation, experience, and activities:

46. Number of years managing this unit:
47. Number of years of total management experience:
48. Highest nursing education:
49. All other degrees in nursing:
50. Age at last birthday:
51. Gender:
52. How would you describe your ethnicity:
53. In a typical work week, how many hours do you work?
54. In a typical work week, do you perform work activities prior to arriving or after leaving the hospital campus?
55. If yes to the previous question, about how many hours per week do you perform these work activities?
56. If yes to question 54, what are these activities?
57. Do you own a smartphone?
58. Do you have work email linked to your smartphone?
59. If yes to the previous question, do you check/read/respond to email prior to arriving or after leaving the hospital campus?
60. In regard to the previous question, how many hours in a typical week do you spend on these activities?
61. Is there anything else you would like to tell me about your work activities?

*Adapted in part from the prior work of: Minnick, Fogg, Mion, Catrambone & Johnson, 2007; Minnick, Mion, Johnson, & Catrambone, 2007

APPENDIX G

Nurse Manager Activity Self-Report

Please reflect on the activities you performed today. Please allocate a percentage of time next to each activity category. Your response must add up to 100%.

NM Code:_____

Day 1 Day 2

Scheduled meeting _____

Unscheduled meeting_____

Deskwork _____

Telephone work _____

Clinical work _____

Rounding _____

Personal _____

Total: 100%