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Anne Schmidt, DNP, MSN, RN, APRN-BC, CENP
George Washington University

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Missed Nursing Care Reported by Medical-Surgical RNs in a Community Hospital

Presented to the Faculty of the School of Nursing,
The George Washington University,
In partial fulfillment of the
requirements for the degree of
Doctor of Nursing Practice

Anne Schmidt, MSN, RN, APRN-BC, CENP

DNP Project Team
Ellen T. Kurtzman, PhD, MPH, RN, FAAN
John Welton, PhD, RN, FAAN

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Abstract

Background: Missed nursing care is defined as any lapse in essential patient care. It is a previously studied, persistent phenomenon. If unrecognized, it can compromise patients' recoveries, trigger adverse events, and increase healthcare costs.

Objectives: To examine the prevalence of missed nursing care reported by medical-surgical registered nurses (RNs) and contributing factors for its occurrence.

Methods: The project used a cross-sectional, correlational design. A convenience sample of 96 RNs, recruited from three medical-surgical units, completed the *MISSCARE Survey* between September and October 2017. An analysis of survey responses quantified the frequency, nature, and common contributing factors for care omissions. The project was set in a small, Northeast, Pathway to Excellence® designated hospital.

Results: Fifty-two RNs completed surveys, most who were female (94.2%), held a Bachelor's in Nursing degree (53.8%), and had 10+ years of work experience (34.6%). Over 1 in 5 respondents reported five nursing tasks were "frequently" or "always" missed: care conferences (46.1%), scheduled ambulation (36.5%), turning (34.6%), monitoring intake and output (23.1%), and timely medications administration (23.1%). Significant contributors to care omissions were: heavy admission/discharge activity (57.7%), fewer assistive personnel (55.8%), staff shortages (50.0%), and unbalanced patient assignments (40.4%).

Conclusions: RNs identified the top five missed nursing care items in a small, community hospital and cited patient turnover, labor resource shortages, and unbalanced assignments as key, contributing factors. Inter-professional communication and teamwork effectiveness were not reported as contributing factors. Project results should inform nurse leaders' efforts to devise interventions to safeguard patients, improve quality, and decrease cost.

Background

The Institute of Medicine¹(IOM), published *Crossing the Quality Chasm: A New Health System for the 21st Century* (2001), which called for the redesign of the healthcare delivery system. The call to action was based on the healthcare systems languor for re-engineering processes and strengthening care teams, necessary for managing increasingly complex and dynamic care delivery models and environments. In a subsequent report, *Keeping Patients Safe: Transforming the Work Environment of Nurses* (2004), the IOM highlighted the role nurses play in ensuring patient safety and recommended improvements to the nursing work environment to optimize health outcomes. The report explicitly advocated for; (a) an emphasis by governing boards and leadership on the promotion of patient safety, (b) strengthening inter-professional collaborations, (c) translating evidence-based practices into strategies and processes to instill an organizational safety culture, and (d) imploring nurse leaders to influence, transform, and sustain positive work environments to enhance patient safety (IOM, 2004).

Registered Nurses (RNs) perform critical roles in achieving patient safety and quality because they provide the majority of bedside care and are well-positioned to recognize and prevent patient harm (Quigley & White, 2013). However, nursing care for patients may not be reliable or amply provided; care tasks can be missed, and care omissions can lead to adverse patient outcomes (Blackman et al., 2014). To date, efforts to improve healthcare quality and safety have intentionally emphasized the reduction of commission errors such as administering the wrong dose of medication to a patient because they are easier to detect and more frequently reported (Agency for Healthcare Research and Quality [AHRQ], 2016). Conversely, a failure to

¹ The Institute of Medicine (IOM) changed its name to the National Academy of Medicine in April 2015, as part of a reorganization initiative to improve work integration with the National Academies of Science, Engineering, and Medicine (National Academies of Science, Engineering, and Science, 2018)

perform recommended care or any portion thereof is an error of omission, which represents a more significant problem (AHRQ, 2016). Unfortunately, omission errors are difficult to recognize, and because of this, fewer investigations have explored and less is known about this phenomenon (AHRQ, 2016). Yet, omission errors can pose severe safety risks to patients and contribute to harm, reduce the quality of life (QOL), and cause deleterious cascading effects on healthcare outcomes (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002).

The concept of “missed nursing care” is analogous to omitted or delayed care (Kalisch, 2006). Missed nursing care is defined as “any aspect of standard, required nursing care, not provided to the patient” (Kalisch, 2015, p. 17). For instance, a failure to ambulate an older adult patient, which is an example of missed nursing care, can contribute to muscle deconditioning and functional decline. These losses can subsequently extend hospitalization, increase mortality, and increase the risk of hospital-acquired conditions (HACs), post-hospital rehabilitation, and nursing home placement (Callen, Mahoney, Grieves, Wells, & Enloe, 2004; Fisher et al., 2011). Failure to provide nourishment to an older adult patient by setting up or assisting with feeding is another form of missed nursing care. Insufficient nutritional intake can exacerbate poor or declining nutritional status which can increase the risk for pressure ulcers, delay healing, increase the risk for infection, prolong hospitalization, and increase patient mortality (Kagnasky & Berner, 2005).

There are no cost estimates of missed nursing care. However, there are downstream monetary consequences for the patient and the hospital. For example, when missed care results in protracted recoveries or unexpected rehabilitation or long-term care, there are higher out-of-pocket costs for patients or more significant expenditures by the insurance industry (Meddings et al., 2015). Pappas (2008) found that an adverse event for a medical or surgical patient due to a

fall, pneumonia, or pressure ulcers, had a combined cost per case increase of approximately \$1,000, and if examined individually, ranged from \$300 to \$2,400 added cost per adverse event, but did not address the root cause for why the adverse event occurred or the relationship to missed nursing care.

Under new policies, HACs are financially penalized, with a one-percent reduction in Medicare payments via the Hospital-Acquired Conditions Reductions Program and private insurer quality and value-based purchasing contracts (Castellucci, 2017; Meddings et al., 2015). To further illustrate this point on a national scale, there are over 1.7 million patients who experience a HAC annually, which contributes to more than 100,000 deaths; approximately one-third may be preventable (Roberts et al., 2010). Medicare pays an additional \$145 million annually for HACs (Kandilov, Coomer, & Dalton, 2014). On average, the cost for an added inpatient day in a non-profit hospital in 2013 was \$2,289, and the estimated expense for a hospital-acquired pressure ulcer was \$17,000 with an increased mortality rate of 72 deaths per 1,000 patients (AHRQ, 2013; Rappleye, 2015). Ultimately, patients and families bear the burden of a decline in safety, the adverse human toll, and unintended patient suffering. Ergo, patient risk and cost could be significant when nursing care is omitted and have broader implications.

Problem Statement

While there have been studies of missed nursing care, they have been limited to, or combined with specialty areas of hospitals (intensive care, emergency department, neonatal or perioperative suites) or are based on the experiences of various disciplines of hospital staff rather than nurses, exclusively. Few studies have examined the phenomenon solely on RNs and medical-surgical units where the majority of patients receive their care (Kalisch, Xie, & Ronis, 2013). A focus on medical-surgical RNs is essential, because they are the single largest specialty

group in the United States (Academy of Medical-Surgical Nurses [AMSN], 2017). Moreover, medical-surgical RNs face unique work environments characterized by higher RN to patient ratios, a fast-paced environment, and greater patient intensity of care, when compared to other units (AMSN, 2017). To that end, Kalisch described the phenomenon of missed nursing care and the risks it poses for patients, which to date, has been broadly researched; and yet, care omissions continue.

Further, there is an absence of research on missed nursing care that is set in small community-based hospitals, which is a significant gap given that small hospitals (i.e., those with less than 100 beds) comprise nearly 50% of all acute care organizations in the United States, admit approximately 70% of patients onto medical-surgical units, and employ a disproportionate number of medical-surgical RNs (AHRQ, 2014; American Hospital Association, 2013). Additionally, research on missed nursing care has not accounted for regional differences despite state-to-state differences in occupational policies, legislation, and nurse staffing requirements which could influence the nursing work environment and patterns of nursing care quality (Maloney, Fenci, & Hardin, 2015). Taken together, prior research is not broadly generalizable and does not capture the scope or magnitude of the problem. This study was an attempt to close this gap.

Aims

The purpose of the project was to extend research about missed nursing care by examining the phenomenon in a small, Pathway to Excellence® designated community hospital in the Northeast, and among RNs working on medical-surgical units.

Research Questions

The research questions for this project were:

1. On medical-surgical units, what was the prevalence and type (top five) of nursing care that was missed?
2. On medical-surgical units, what factors (top five) contributed to missed nursing care?
3. Did the most prevalent type of missed care vary by select RN characteristics?
4. Were RN characteristics for education level (ADN versus BSN or higher) and the number of hours worked by RNs, related to the reasons (top five) for missed care?

Significance

Few studies have examined missed nursing care solely among RNs who work on medical-surgical units, where most patients receive their care (Kalisch, Xie, & Ronis, 2013). This project's focus on medical-surgical RNs was essential because these RNs represent the single largest nurse specialty group in the United States, have experienced an increased workload in recent years, and function in a fast-paced environment with competing demands and high intensity resulting from rapid patient turnover (AMSN, 2017). This work environment is known to contribute to care omissions (Winsett, Rottet, Schmitt, Wathen, & Wilson, 2016).

Additionally, nursing leaders are responsible for marshaling operational, clinical, and financial strategies to improve patients' experiences with care, increase care quality, mitigate patient harm, and reduce patient suffering (AHRQ, 2016; Dempsey, 2018). Optimal patient outcomes are critical for an organization's reputation and competitiveness and for maximizing value-based reimbursement by private and public insurers (Jarousse, 2015). Understanding and identifying inherent organizational relationships and the variables that impact patient quality and safety, such as the type(s) and rationale for missed nursing care, is a vital strategy for achieving the Quadruple Aim (Maloney, Fenci, & Hardin, 2015).

Literature Review

A literature search was conducted to identify scholarly articles related to missed nursing care that were written in English and published between 2007 and 2017. CINAHL, PubMed, and Ovid MEDLINE were used as the primary electronic bibliographic databases. Search terms included missed care, omitted care, delayed care, care rationing, unmet nursing care, care undone, cutting corners, patient safety, and adverse events. Studies set in inpatient hospital settings and focused on adult patient populations were retained. Studies conducted outside of the United States (U.S.) were systematically excluded based on the potential variations or limitations in RN scope of practice. Pertinent articles' reference lists were also examined to identify additional, relevant publications. Ultimately, 23 titles on this topic met the inclusion criteria and were synthesized for this review.

The seminal qualitative study that described missed nursing care was set in two hospitals on medical-surgical units and was based on a sample of 107 nursing staff and labor personnel (RNs, licensed practical nurses [LPNs], and nursing assistants) (Kalisch, 2006). Kalisch conducted focus group interviews and discovered those essential elements of nursing care which were routinely omitted—i.e., ambulation, turning, patient feedings, patient teaching, discharge planning, emotional support hygiene, intake and output documentation and patient surveillance. Kalisch was able to link missed nursing care to poor patient outcomes; a failure to ambulate or turn patients resulted in skin breakdown and increased risk of pressure ulcers (Kalisch, 2006; Karmel, Iqbal, Mogallapu, Maas, Hoffman, 2003; Mundy, Leet, Darst, Schnitzler, & Dunagan, 2003). Additionally, Kalisch was able to associate a nurse's failure to ambulate patients to the development of pneumonia and delirium and increased pain, physical disability, and longer hospitalizations. Kalisch (2006) also found that because nurses tend to prioritize care associated

with physician orders, the routine care tasks or those related to activities of daily living (e.g., feeding, ambulation) were often missed. Nurses also made assumptions that delegated care tasks to nursing assistants were completed and failed to ensure tasks were accomplished (Kalisch, 2006). Finally, Kalisch (2006) argued for additional, empirical validation of her findings and the development of a tool for measuring missed nursing care.

Henceforth, Kalisch and Williams (2009) developed and tested the Missed Nursing Care Survey (*MISSCARE Survey*) to quantify the types of and reasons for omitted care as reported by nursing staff. The first investigation of missed care using the tool included 459 RNs in three hospitals and revealed that ambulation, followed by evaluation for medication efficacy, patient turning, providing mouth care, and discharge teaching were the most frequent types of missed nursing care (Kalisch, Landstrom, & Williams, 2009). Labor resources (85%), materials/equipment (56%), and communication between nurses and medical staff or labor personnel (38%) were cited as the most common contributing factors (Kalisch, Landstrom, & Williams, 2009). A second study by Kalisch, Tschannen, Lee, and Friese (2011), which spanned ten Midwestern and Western hospitals and included 3,143 RNs and 943 nursing assistants, delivering care in multiple specialty and medical-surgical units, demonstrated similar results for omitted care across all hospitals: ambulation (32.7%), care conference attendance (31.8%) and mouth care (25.5%) were frequently or always missed. The most commonly cited reasons for missed care were labor/personnel shortages (93.1%), material/equipment resources (89.6%), and lack of communication/teamwork (81.7%).

Maloney, Fend, and Hardin (2015) conducted a missed nursing care validation study in North Carolina to extend the generalizability of previous research completed in the Midwest. The authors surveyed 205 RNs, LPNs, and Nursing Technicians, in three acute care hospitals

(Maloney, Fend, & Hardin, 2015). Maloney, Fend, and Hardin (2015), found that the most frequently missed care items were ambulation (77.7%), patient turning (73%), timely medication administration (67%), mouth care (62%), and patient feeding (60.5%). The reasons for omitted care were insufficient numbers of staff (51%), sudden increases in patient volume or acuity (51.6%), inadequate numbers of assistive personnel (50.5%), heavy admissions and discharges (40.7%), and medication availability (40.1%) (Maloney, Fend, & Hardin, 2015).

McMullen et al. (2017) focused on broadening the geographic reach of missed nursing care research by conducting their study in a Central New York hospital, utilizing a sample of 537 RNs, LPNs, and Nursing Assistants and found that glucose monitoring (87%), patient assessments (82%), handwashing (81%), and patient feeding (54%) were the most frequently omitted types of care. The top three reasons for missed nursing care were communication between team-members (98%), shortages of materials (98%), and labor resources (99%) (McMullen et al., 2017). The authors contended that the variation they found in omitted care tasks from previous studies was attributable to differences in the interpretation of questions, education levels, and role(s) (McMullen et al., 2017).

Winsett, Rottet, Schmitt, Wathen, and Wilson (2016) conducted a study of missed nursing care set in the Midwest utilizing four acute care organizations, 18 medical, surgical, and medical-surgical units, and a sample size of 168 nurses. The most frequently reported omitted care tasks were ambulation, medication within 30 minutes, and mouth care (Winsett, Rottet, Schmitt, Wathen, & Wilson, 2016). The most frequently cited reasons for missed nursing care were related to labor resources - unexpected increases in volume/acuity, high admissions and discharges, inadequate numbers of assistive and staff - and medication availability (Winsett, Rottet, Schmitt, Wathen, & Wilson, 2016). The authors also analyzed RN hours per patient day

(RNHPPD), total full-time equivalents, and case mix index (CMI), and found that there were statistically significant differences in the CMI between units but no statistical significance in missed nursing care between units types, that could substantiate RN perceptions of labor resource shortages when patient care is more complicated (Winsett, Rottet, Schmitt, Wathen, & Wilson, 2016).

Other studies of missed nursing care have explored its various predictors and its downstream consequences. Study findings include:

- RNHPPD predicted missed nursing care, and the number of patients cared for during a shift influenced the amount of missed nursing care (Kalisch, Tschannen, & Lee, 2011; Kalisch, Friese, Choi, & Rochman, 2011);
- Nursing workload (percent of patient turnover) was not associated with higher levels of missed nursing care (Orique, Patty, & Woods, 2016);
- Nurses who reported less missed nursing care had a higher degree of satisfaction with their jobs (Kalisch, Tschannen, & Lee, 2011; Tschannen, Kalisch, & Lee, 2010; Chapman, Rahman, Courtney, & Chalmers, 2016; Kalisch, Gosselin, & Choi, 2012; Kalisch, Weaver, & Salas, 2009).
- A failure to ambulate patients—one type of missed nursing care—resulted in a decline in patients' functional abilities and was associated with increased falls and prolonged length of stay (Fisher, Kuo, Graham, Ottenbacher, & Ostir, 2010; Kalisch, Tschannen, & Lee, 2012);
- Low RNHPPD and higher missed nursing care were associated with an increased falls rate (Kalisch, Lee, & Dabney, 2014; Kalisch, Xie, & Dabney, 2014);

- Another type of missed nursing care—failure to perform mouth care—was associated with higher oral complications (gingivitis or tooth decay), the development of pneumonia, and inadequate nutritional intake (Liao, Tsai, & Chou, 2014; Quinn et al., 2014).

Kalisch and Lee (2012) explored the relationship between nurses' work environment, Magnet^{®2} status, and missed nursing care on 124 medical-surgical, intermediate, intensive care, and rehabilitation units in 11 hospitals in the Midwest and West (Kalisch & Lee, 2012). Compared to nurses in non-Magnet hospitals, nurses in Magnet facilities reported less missed nursing care including: turning, set up or feeding of meals, completing documentation, patient teaching, mouth care, central line care, call-light response, medication administration, and skin or wound care (Kalisch & Lee, 2012). Magnet hospital nurses also reported improved communication and help from nursing assistants when compared to non-Magnet hospitals, despite comparable staffing levels (Kalisch & Lee, 2012). Kalisch and Lee (2012) hypothesized that unit culture explained the variances in these nurses' reported care omissions.

Theoretical Foundation

The Missed Nursing Care Model served as a conceptual framework and guide for this project (Kalisch, Landstrom, & Hinshaw, 2009). The model aligns with Avedis Donabedian's structure-process-outcome framework for evaluating healthcare quality (Donabedian, 1988). In the Missed Nursing Care Model, structural variables are the static characteristics of the hospital and serve as the context for the delivery of care. For instance, unit characteristics (e.g., adequate number staff refers to RNs or nursing assistants, techs, unit secretaries; number of patients admitted), RN characteristics (e.g., age, education, experience on unit), and teamwork (e.g.,

² Magnet[®] status is a performance driven credential, reflecting quality and excellence in clinical care and the environment, and employs evidence-based practices to accomplish this merit (American Nurse Today, 2017).

communication, delegation), represent structural variables for the model. Missed nursing care denotes the process element(s) and reflects what occurs—or doesn't occur—during the delivery of care. Missed nursing care is influenced by each structural element (variable) and ultimately impacts care outcomes. Care outcomes are divided into two areas of impact—patient and staff—with the degree of missed care posited to be linked with staff outcomes such as job satisfaction and turnover and the effect on patient care quality and safety (e.g., falls, infections) (Kalisch, 2015; Kalisch, Tschannen, Lee & Friese, 2011).

The Missed Care Nursing Model describes the inter-relationships between the components of the structure-process-outcome framework. For example, when nurses reduce the time they spend at the bedside due to higher nurse to patient ratios, they are forced to prioritize aspects of care that may contribute to care omissions. Additionally, a patient may not ambulate or be turned, which can increase the risk of functional decline or pressure ulcers (Hessels, Flynn, Cimiotti, Cadmus, & Gershon, 2015). Unit characteristics may also be measured to test the predictors of what the RN does or does not do in the relationship between staffing adequacy, and patient turnover (admissions, discharges). The original model pools “nursing” (identified as RN for this project) and unit characteristics to represent a combined structural element that effects care omissions. However, for the purposes of this project, each RN represents a separate unit of analysis. Therefore, RN characteristics are described separately from unit characteristics, and to accomplish this, Kalisch's model has been adapted to illustrate these distinct structures, and examples of variables for each characteristic are provided to further to help delineate the configurations (see *Figure 1*). Further, while the framework is silent on the relationship between the RN characteristics (e.g., education), and the rationale for missed nursing care, this hypothesis was explored to gain further operational insights.

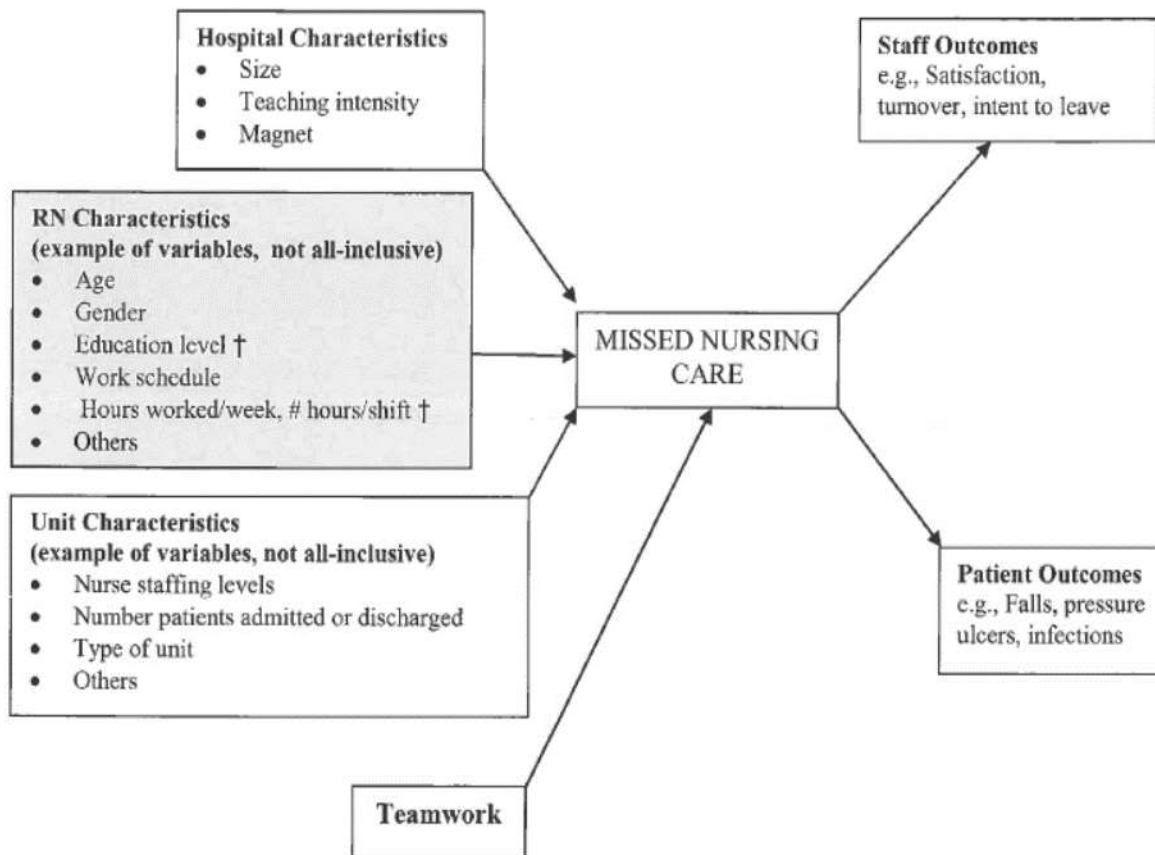


Figure 1: The Missed Nursing Care Model (adapted)

Used with permission from Dr. Beatrice Kalisch, 2/2017

Note: HPPD = hours per patient day, (■) = adaptation to model

† = Examples of variables tested

Identifying and Defining Variables

The *MISSCARE Survey* dictated the study variables, which included the type of missed care (Section A, 24 items) and the reasons (contributing factors) for missed care (Section B, 17 items) (Appendix A). The outcomes of primary interest were the type of missed nursing care and its contributing factors. Independent variables included RN (Section C, 14 items) and hospital unit characteristics (Section D, six items). The nature and strength of the relationships between select variables were explored.

Methods

Design

The project was a cross-sectional, correlational design that used a convenience sample of RNs who completed the *MISSCARE Survey*.

Setting/Population

The project was conducted in a small, community-based, Pathway to Excellence®³ designated hospital located in the Northeast. The hospital is an independent, not-for-profit organization and offers an extensive orthopedic surgical program and medical patient base. RNs employed by the hospital and assigned to each of three units classified as medical (telemetry), surgical (orthopedics) or combined (medical-surgical) were eligible to participate in the study (N= 96).

Sample/Sampling

Following approval by the Institutional Review Boards (IRBs) of both the hospital and George Washington University (GWU) (IRB #081706), all 96 RNs were invited to participate in the project. RNs were eligible to participate if they worked a minimum of two shifts per week on a per diem, part-time, or full-time capacity. Float and contract RNs, whose primary positions were on medical-surgical units as defined by the hiring units and job-descriptions were also included. Eligibility was independent of RNs' educational levels, tenure on the unit, seniority, or shift assignments. Non-RN nursing staff or RNs who were within their 90-day probationary period were excluded from the project.

³ American Nurses Credentialing Center's (ANCC) Pathway to Excellence® Program recognizes hospitals that make healthy work environments to support nurses to excel by using 12 standards to illustrate how safety, collaboration, and healthy work environments are promoted (Dans, Pabico, Tate, & Hume, 2017).

Recruitment

Project recruitment occurred two weeks before the survey's launch. The project's principal investigator (PI) made presentations about the study to the hospital's Shared Governance Councils (a total of four councils) and at three staff and one nurse manager meetings for the purpose of recruitment. During these meetings, the PI explained the purpose of the project, content of the survey, use of the data, and the voluntary nature of participation (Appendix B). Printed "advertising" flyers announcing the survey and recruiting subjects were posted at the employee time clocks and in the break rooms on each unit (Appendix C). An email reminder was sent by the PI to the nurse managers on the participating units on the day before the survey was launched to reiterate key information about the project and the *MISSCARE Survey* (e.g., expected completion time, number of questions, confidentiality protections, access through the hospital's Intranet page) and the plan for dissemination of study results.

Instrument

The *MISSCARE Survey* (Kalisch & Williams, 2009), which has three sections, was the primary data collection tool (Appendix D). First, there were 20 questions that addressed respondents' characteristics (e.g., gender, age), professional experience and background (e.g., title, full-time versus part-time status), position (e.g., primary unit location, shift worked), and job satisfaction, intent to leave, and staffing adequacy (Kalisch & Williams, 2009). Second, there were 24 ordinal items, which addressed the various types of missed nursing care such as ambulation and feeding activities, patient assessment such as intake and output or vital signs, and timeliness of medication administration. Responses to these items were based on a five-point scale—that is, always, frequently, occasionally, rarely, or never (Kalisch & Williams, 2009). Third, there were 17 ordinal items, which addressed the reasons for missed nursing care such as

staffing adequacy, assignments, changes in patient condition, medication and supply availability, and teamwork and communication (Kalisch & Williams, 2009). Responses to these latter items were based on a four-point ordinal scale—that is, significant, moderate, minor, or not a reason. For the purposes of this project, subjects were told that their responses to survey items should be based on the last shift that they had worked. Dr. Beatrice Kalisch's permission to use the *MISSCARE Survey* tool was obtained by the PI before recruitment began.

Survey Tool Psychometric Properties

Multiple studies testing the psychometric properties of the *MISSCARE Survey* have been conducted and the survey has been found to be valid, reliable, and acceptable (Kalisch, 2015). The survey's usability rating, which was based on item completion, was 85% indicating high survey acceptability (Kalisch & Williams, 2009; Kalisch, & Xie, 2014). The time to complete the study was 10 minutes or less, which was considered to be reasonable (Kalisch & Williams, 2009). A three-person expert nurse panel assessed the survey's clarity and relevance establishing an acceptable content validity index of 0.89 (Kalisch, 2015). Focus group interviews were completed by nurse experts to verify "contrasting group validity" (Kalisch & Williams, 2009).

Kalisch and Williams (2009) tested construct validity using exploratory factor analysis (EFA). Factor and confirmatory analyses were applied using the Varimax rotational method, which generated a three-factor solution for the reasons that missed care occurred: communication, staffing, and material resources. The Cronbach reliability value for the causes of missed nursing care was 0.64 to 0.86 (Kalisch, Landstrom, & Hinshaw, 2009, Kalisch, 2015) and the confirmatory factor analysis (CFA) "resulted in a comparative fit index of 0.89, a root-mean-square error of approximation (RMSEA) of 0.054 (less than 0.05 shows a close fit), an incremental fit index (IFI) of 0.90, and a Tucker-Lewis Index (TLI) of 0.85" (Kalisch &

Williams, 2009; Kalisch & Xie, 2014, p. 878). An interclass correlation for the rationale for missed nursing care as reported by nurses was statistically significant (Kalisch & Williams, 2009). A Pearson correlation coefficient of test-retest reliability was established by giving the same survey to the same nurses, at a two week interval, and produced values of 0.87 for the type of missed nursing care and 0.86 for the reasons for missed care (Kalisch & Williams, 2009; Kalisch, 2015).

Administration and Data Collection

A Survey Monkey® web-based tool and data repository were used for data collection. Before posting the live version of the survey, a pilot test of its operability (i.e., data entry and retrieval) was conducted by the PI. The survey was launched on September 18, 2017 and was fielded for 18-days. Participants who consented to participate in the project were directed to the web-enabled survey.

Data Analysis and Plan

All data were transferred into a password protected Excel file and imported into the Statistical Package for the Social Sciences (SPSS) software for analysis. Data were examined after import to ensure accurate record transmission. Descriptive statistics were used to describe the sample and the amount/type and reasons for missed care. The data were inspected visually using histograms and box and whisker plots and tests for normality were conducted. Additionally, the relationships between the five most frequent types of missed nursing care and RN characteristics, and the associations between RN education or hours worked and reasons for care omissions were examined using correlational statistics. Spearman's rank-order correlation coefficients were used for hypothesis testing. The null hypothesis was that no relationship existed.

Ethical Considerations

The project was approved by the Institutional Review Boards (IRBs) of the hospital and GWU. Ethical practices, including subject privacy and data confidentiality were rigorously maintained. Participation in the project was voluntary, and withdrawal at the participant's option was possible at any point. The project was granted a waiver of written consent (Appendix E). Participants were fully informed of the project procedures and its potential risks and benefits before participating.

The survey data were stored on servers within the United States, and Survey Monkey® acted as a custodian for survey responses on behalf of the PI who owned the data (Survey Monkey®, 2017). Subject anonymity was assured through Survey Monkey features designed for this purpose—specifically, the ‘anonymous response.’ Security of data residing on Survey Monkey's servers were maintained through physical protections—e.g., onsite cameras, visitor logs, and entry requirements—account-based access rules, network firewalls and authentication (password protection), quality assurance and auditing procedures, and regulatory control (e.g., accreditation). These features employed on the Survey Monkey platform serve to protect the data. Participant privacy was maintained using the Secure Socket Layer (SSL) encryption, housed with the Survey Monkey tool (Buchanan & Hvizdak, 2009). Survey Monkey data are not public except through subpoena or permission by the survey owner. While no method of Internet transmission or electronic storage is perfectly secure, should a security breach have occurred, the PI would have been notified by Survey Monkey as is required under state and federal laws and regulations (Survey Monkey®, 2017).

Once the data were imported into SPSS, additional security protections were put in place by the PI. Specifically, SPSS files were encrypted and password protected. These files were

maintained by the PI on a single password protected, Universal Serial Bus (USB) flash drive and locked in a desk drawer in the hospital's administrative offices. Only the PI had access to the key to this file drawer. Computers used to conduct the analysis were password protected and access was limited to the PI. All results were disseminated in an aggregate format. Data will be destroyed three years after completion of the study.

Results

Unit and Nursing Characteristics

Surveys were completed by 52 RNs for a response rate of 54%. Most respondents were female (94.2%), 25 to 34 years of age (36.5%), worked 30 hours or more per week (80.8%), held a Bachelor's or Masters of Nursing Degree (59.6%), and had more than 10-years of work experience (34.6%) (see Table 1). A plurality of respondents worked day shifts (40.4%); 23.1% of respondents worked evenings and 26.9% worked nights with more respondents working eight hours (44.2%) versus twelve-hour shifts (38.5%). A small percentage of participants reported that staff adequacy was always sufficient (1.9%) with the majority indicating that the unit was adequately staffed 50 – 75% of the time (73.0%). A nurse to patient ratio of 1:5 was reported by the majority of respondents (57.7%). The vast majority of RNs (92.3%) reported that one to three patients were admitted (new or transfer) and 28.8% reported that at least three patients were discharged on the last shift they worked. Staff were predominantly satisfied or very satisfied with their current job (71.1%), the nursing profession (90.4%), and were content with the level of teamwork on the unit (78.9%). Less than 1 in 5 respondents reported that they planned to leave their current position within the next six months to one year (19.3%). A complete list of the RN and unit characteristics has been appended (Appendix F).

Table 1: RN and Unit Characteristics

Characteristic	Count/n	Percent
Age		
Under 25 years old (<25)	4	7.7
25 to 34 years old (25-34)	19	36.5
35 to 44 years old (35-44)	9	17.3
45 to 54 years old (45-54)	9	17.3
55 to 64 years old (55-64)	8	15.4
Over 65 years old (65+)	2	3.8
Gender		
Male	2	3.8
Female	49	94.2
Highest level of education completed		
Diploma	3	5.8
Associates degree in Nursing	10	19.2
Bachelor's Degree in Nursing	28	53.8
Bachelor's degree outside of Nursing	7	13.5
Master's degree (MSN) or higher in Nursing	3	5.8
Master's degree or higher outside of nursing	1	1.9
Number of hours usually worked per week		
<30 hours per week	10	19.2
30 hours or more per week	42	80.8
Work hours (most descriptive of the hours you work)		
Days (8 or 12 hour shift)	21	40.4
Evenings (8 hour shift)	12	23.1
Nights (8 or 12 hour shift)	14	26.9
Rotates between days, nights or evenings	4	7.7
Experience (time) in your role as an RN		
Up to 6 months	3	5.8
Greater than 6 months to 2 years	8	15.4
Greater than 2 years to 5 years	9	17.3
Greater than 5 year to 10 years	14	26.9
Greater than 10 years	18	34.6
Which shift do you most often work?		

8 hour shift	23	44.2
10 hour shift	5	9.6
12 hour shift	20	38.5
8 and 12 rotating shifts	3	5.8
How often do you feel the unit staffing is adequate?		
0% of time	3	5.8
25% of time	10	19.2
50% of time	15	28.8
75% of time	23	44.2
100% of time	1	1.9
On the current or last shift you worked, how many patients did you care for?		
1 RN to 4 Patients	5	9.6
1 RN to 5 Patients	30	57.7
1 RN to 6 Patients	6	11.5
1 RN to 7 Patients	11	21.2
On the current or last shift worked, how many patient admissions did you have (i.e. includes transfers into the unit)?		
1 admission	17	32.7
2 admissions	15	28.8
3 admissions	16	30.8
4 admissions	2	3.8
5 admissions	2	3.8
On the current or last shift, how many patient-discharges did you have (i.e. includes transfers out of the unit)?		
No discharges	16	30.8
1 discharge	8	15.4
2 discharges	13	25
3 discharges	10	19.2
4 discharges	5	9.6

Missed Nursing Care (five leading types)

Responses for missed nursing care type (see Table 2) demonstrated that more than 1 in 5 respondents reported that five missed nursing care tasks were “frequently” or “always” missed: attending interdisciplinary care conference (46.1%), ambulation three times per day (36.5%), and turning every two hours (34.6%). There were two missed care types that were ranked equally, and included medications administered within 30 minutes before or after scheduled time (23.1%), and monitoring intake and output (23.1%). A majority of respondents indicated that

assessing patients each shift (98.1%), monitoring patients' glucose levels (96.2%), and reassessing patients (80.7%) were rarely or never missed. Additionally, a greater number of respondents reported that intravenous or central line care and assessment (71.2%), skin or wound care (61.5%), and the evaluation of medication effectiveness (57.7%), were rarely or never omitted care tasks. A complete list of the prevalence and type of missed nursing care as reported by RNs has been appended (Appendix G).

Table 2: Leading Types of Missed Nursing Care

Missed Nursing Care by Type	Frequently/Always Missed	
	n	percent
1. Attend interdisciplinary care conferences whenever held	24	46.1
2. Ambulation three times per day or as ordered	19	36.5
3. Turning patient every 2 hours	18	34.6
4. Medications are administered within 30 minutes before or after scheduled time	12	23.1
5. Monitoring intake and output	12	23.1

Reasons for Missed Nursing Care (five leading reasons)

The most common contributors to missed nursing care were heavy admission/discharge activity (57.7%), inadequate number of assistive or clerical personnel (55.8%) or staff (50.0%), unbalanced patient assignments (40.4%), and an unexpected increase in the acuity or patient volume on the unit (36.5%). When the responses were collapsed to include the replies of significant and moderate reasons for missed care, the top five categories remained the same, with medication availability noted as the sixth most common reason for care omissions (see Table 3). More than three-quarters of the RNs responded that tension or communication between nursing team members (83.7%), unavailability of a caregiver (78.8%), and other departments not providing/ assisting with care (73.1%) were *not* reasons or were minor reasons for missed care.

Over half of the respondents reported that inadequate hand-offs (67.3%) and back up support from team members (65.4%) was *not* a reason or a minor reason for missed care. A complete list of the reasons for missed care has been appended (Appendix H).

Table 3: Contributing Factors/Leading Reasons for Missed Care

Reason for Missed Care	Significant		Significant & Moderate	
	n	percent	n	Percent
1. Heavy admission and discharge activity	30	57.7	47	90.4
2. Inadequate number of assistive and/or clerical personnel (nursing assistants, techs, unit secretaries)	29	55.8	49	94.3
3. Inadequate number of RN staff	26	50.0	44	84.6
4. Unbalanced patient assignment	21	40.4	37	71.2
5. Unexpected rise in patient volume and/or acuity on the unit	19	36.5	44	84.6
6. Medications not available when needed	9	17.3	33	63.5

Associations between Select RN Characteristics and Missed Nursing Care Types

The relationship(s) between select RN characteristics and the most prevalent types of missed nursing care were analyzed using Spearman’s Rank Correlations (see Appendix I). Generally, the magnitudes of these relationships were weak and their directions inconsistent (i.e., both positive and negative). In the vast majority of cases (59 of 72 variable pairings; 81.9%), relationships were not found to be statistically significant.

Among the 13 variable pairings that were found to be significant (18.1% of variable pairings tested), all but one pairing was negative—that is, a high rank on one variable (e.g., care always missed) was associated with a low rank on the other (e.g., minor reason):

- care conference attendance and the number of shifts missed ($r = -0.270, p \leq 0.05$);
- ambulation and the time of day worked ($r = -0.350, p \leq 0.05$);
- ambulation and nursing satisfaction ($r = -0.276, p \leq 0.05$)

- ambulation and the number of missed shifts due to illness or injury ($r = 0.326, p \leq 0.05$);
- patient turning (turning) and education level ($r = -0.275, p \leq 0.05$);
- turning and the time of day worked ($r = -0.340, p \leq 0.05$);
- turning and position satisfaction ($r = -0.375, p \leq 0.001$);
- turning and nursing satisfaction ($r = -0.316, p \leq 0.05$).
- administration of medication within a 30-minute window and position satisfaction ($r = -0.307, p \leq 0.05$);
- monitoring intake and output the time of day worked ($r = -0.420, p \leq 0.001$).

One pairing demonstrated a positive and statistically significant relationship suggesting that a high rank on the variable (e.g., care always missed) was associated with a high rank on the other (e.g., significant reason):

- ambulation and position satisfaction ($r = -0.335, p \leq 0.05$).

Correlation coefficients (Spearman's rho) for all variable pairings tested are appended (see Appendix I).

Associations between Select RN Characteristics and Reasons for Missed Care

There were no statistically significant correlations between education or the number of hours worked per shift and any of the top six reasons for why nursing care was missed (see Table 4). However, there were weak negative associations demonstrated between the number of hours worked per week and both heavy admission and discharge activity ($r = -0.281, p \leq 0.05$) and unexpected rise in patient volume and/or acuity ($r = -0.291, p \leq 0.05$).

Table 4: RN Education Level, Number of Hours Worked and Association with Reasons for Missed Care

RN Characteristic	Heavy admission and discharge activity	Inadequate number, assistive/ clerical personnel	Inadequate number of RN staff	Unbalanced patient assignment	Unexpected rise in patient volume and/or acuity	Medications not available when needed
Education level	-0.197	-0.170	-0.068	-0.056	-0.052	0.115
# hours/shift	-0.106	0.135	0.095	-0.054	-0.079	0.217
#hours worked/ week	-0.281*	-0.022	-0.057	-0.113	-0.291*	0.217

* $p \leq 0.05$; ** $p \leq 0.001$

Discussion

The projects key findings included:

- The most prevalent types of missed nursing care were attendance at interdisciplinary care conferences, ambulation as ordered, timed patient turning, medications administered 30 minutes before or after the scheduled time, and monitoring intake and output.
- The reasons for missed nursing care were heavy admission and discharge activity, inadequate number of assistive personnel or staff, unbalanced patient assignments, an unexpected rise in patient volume and/or acuity on the unit and medications not available when needed.
- Generally, the magnitudes of the relationships between nursing characteristics and the types of missed nursing care were weak and not statistically significant and their directions inconsistent.
- There were weak inverse relationships between the number of hours worked per week and both heavy admission and discharge activity and an unexpected rise in patient volume and/or acuity.

Types of Missed Nursing Care

The project results for the most prevalent types of missed nursing care were congruent with four previous studies (see Appendix J) and included, patient ambulation, timely medication administration, turning, and care conferences (Kalisch, Landstrom, & Williams, 2009; Kalisch, Tschannen, Lee, & Friese, 2011; Maloni, Fenci, & Hardin, 2015; Winett, Rottet, Schmitt, Wathen, & Wilson, 2016). The reported percentages for care omissions varied between studies based on how response categories were combined for recording purposes (e.g., always/frequently or always/frequently/occasionally), however, this did not alter the final results. As a leading type of missed care, monitoring intake and output was unique to this study and was cited as ‘frequently missed’ by RNs on one unit. Opportunities for further education and training for monitoring intake and output, includes conveying clinical necessity and rationale, practice standardization, and improvements for organizing care to increase RN reporting compliance.

Reasons for Missed Nursing Care

Several of the factors RNs identified as contributing to missed nursing care in this study were also consistent with prior studies: shortages in labor resources (i.e., inadequate numbers of assistive personnel or RN staff), unexpected increases in patient volume, heavy admission and discharge, and the availability of medication when needed (see Appendix K). The finding that RNs reported unbalanced patient assignments as a reason for missed care was distinct to this study (Kalisch, Landstrom, & Williams, 2009; Kalisch, Tschannen, Lee, & Friese, 2011; Maloni, Fenci, & Hardin, 2015; Winett, Rottet, Schmitt, Wathen, & Wilson, 2016, McMullen, et al., 2017). Unbalanced assignments were reflective of the environment where the project was

conducted, including the size of the medical-surgical units (20 beds) and high patient turnover rates (admission/discharge) for patients due to mixed patient observation⁴ and inpatient statuses.

Timely Medication Administration

Of significance, and an immediate patient safety risk, were the findings that (1) lapses or omissions in medication administration 30 minutes before or after the scheduled time were commonly reported by RNs as a type of missed care and (2) the availability of medications when needed was a significant reason for missed care. Timely medication administration by RNs is influenced by pharmacy dispensing practices, adequate supply (Ramsey, 2017), and the demand for care coordination. Timely medication administration is further compromised by the availability of a drug on the unit; when survey results were combined for this question (utilizing replies of significant and moderately significant), greater than half of the RN respondents (63.5%) indicated that the availability of a medication, was a barrier to patient administration. Clinical implications for delayed or omitted medications for conditions such as venous thromboembolism (VTE) treatment or sepsis, where hourly delays in anticoagulation therapy or antibiotic administration respectively are associated with protracted recovery time(s), higher length of stay, and increased odds of hospital mortality (Liu, et al., 2017; Alikhan, Bedenis, & Cohen, 2014). Further, there was a moderately strong, inverse relationship between medication administration within a 30-minute window and position satisfaction, suggesting that when an RN omits or is unable to medicate a patient on time, there is reduced job satisfaction with his/her position or that when there is low job satisfaction, RNs are unable to medicate patients in a timely manner. Reduced job satisfaction due to depleted physical and mental resources,

⁴ Observation status is an outpatient hospital designation, typically lasting less than 48 hours, and is intended to give providers time to decide if a patient should be admitted to an inpatient status or discharged back to the community; use of observation status has increased due to higher scrutiny of short inpatient stays, and improved efficiency, rapid triage and lower overall costs (Lind et al., 2017).

otherwise known as “burnout,” in response to chronic job stress, reinforces the need for improving the work environment by reducing distractions, and interruptions that compel RNs to create work-arounds, especially when functioning in a complex, fast-paced environment. By identifying and correcting the root causes of workplace system errors, such as developing a heightened awareness for potential risks, and refining the sensitivity to operations, to mitigate human factor errors - that is, RN medication administration errors or omissions - adverse patient outcomes can be prevented, safety improved, RN position gratification increases, and RN burnout decreases.

Association between Select RN Characteristics and Missed Nursing Care Types

The weak strength and non-significance of the relationships between the RN characteristics and the types of missed nursing care tested, were unexpected. It is posited that the small sample size, setting, or RN understanding of the survey tool may have influenced these counterintuitive results and requires further clarification (e.g., repeat the survey). However, of the weak, inverse relationships revealed between (1) the time of day worked and position satisfaction with ambulation, turning, and feeding, and (2) nursing satisfaction and ambulation and turning, could be influenced by the work environment, specifically, the hectic tempos of the day and evening shifts. Factors contributing to missed nursing care were based on truncated length of stays, increased patient testing within a condensed timeframe, and higher patient turnover - with each challenge seemingly contributing to the RNs’ inability to complete care tasks. The intensification of patient “churn⁵,” could also affect the RNs’ abilities to accommodate changes in patient volume or acuity, and could compound the perception of unbalanced assignments.

⁵ “Churn” is operationally described as a phenomenon that occurs with continuous patient admissions, discharges, transfers and the daily care workload that is accepted as the norm of healthcare (Park, Weaver, Mejia-Johnson, Vukas, & Zimmerman, 2016).

These results are supported by Park, Weaver, Mejia-Johnson, Vukas, and Zimmerman (2016), who reported that high patient turnover created fragmentation of nursing care, increased RN workload and the ability to provide safe, high quality care. Therefore, optimizing RN staffing during peak-churn timeframes could improve the match with nursing care requirements and avoid adverse events in patient care and/or mortality (Needleman et al., 2011).

The findings represent shared challenges by RNs and have profound implications for defects found in patient care. In small community hospitals, there are fewer numbers of RNs, and the ability to quickly flex staffing to accommodate variations in patient census during various times of the day or shift, is a limitation, and contributes to RN prioritization of patient care tasks. The RN's ability to render complete care also influences their satisfaction with their position; missed nursing care was moderately strong, and inversely correlated with RN position satisfaction –low ranks on RNs satisfaction were associated with high ranks on selected types of missed nursing care (i.e., ambulation, feeding, turning, medication administration within a 30 minutes timeframe)

The project was conducted in a hospital where satisfaction with teamwork was positive, as reflected by more than 3 out of 4 respondents rating satisfaction with teamwork as satisfied/very satisfied (79.9%). Communication tension(s) was *not* a reason for care omissions, between RNs (82.7%), support departments (59.7%), or medical staff (63.5%) (see Appendix H). These findings are indicative of a supportive work environment as evidenced by the Pathway to Excellence designation.

Associations between Select RN Characteristics and Reasons for Missed Care

There were weak inverse relationships between the number of hours worked per week and both heavy admission and discharge activity and an unexpected rise in patient volume and/or acuity. RNs who worked fewer hours perceived the high unit activity to be a reason for higher amount(s) of missed nursing care. However, RNs who worked an increased number or a consistent number hours per week, appeared to be able to accommodate the demands of the unit, and is postulated to be based on better continuity of care or increased familiarity with patients on the unit, and improved team stability (Kalisch, Begeny, & Anderson, 2008). Further, the association between higher numbers of hours worked per shift, was expected to demonstrate strong positive relationship with heavy admissions and discharges or unexpected increases in patient volume or acuity. As RN's work more hours, it was speculated that there may be a higher degree of worker-fatigue, subsequently reducing his/her ability to respond to intense changes in admissions, discharges, or patient acuity. Barker-Steegen, and Nussbaum (2011b) report that fatigue can negatively influence RN performance due to the decline in physical and cognitive abilities of the RN when there are excessive work tasks, long work hours, circadian disruption, complex or high acuity patients, and insufficient staffing ratios (Smith-Miller, Shaw-Kokot, Curro, & Jones, 2014). RNs who are fatigued may have decreased reaction time, attention to detail, and problem-solving ability, which contributes to increased risk for errors (Barker -Steegen, & Nussbaum, 2011b). Instead, the weak negative association may indicate that RN's who work more hours become more accustomed to the unit tempo versus those RN's that work fewer hours and are not as agile when responding to the rapid changes in patient volume(s) (Kalisch, Begeny, & Anderson, 2008).

The relationships between education level and number of hours worked each week and missed nursing care were not statistically significant, which was a surprising finding based on the IOM's *Future of Nursing, Leading Change and Advancing Health* (2010), which recommended increasing the number of nurses with a Bachelor's of Nursing (BSN) degree to 80% by 2020, to match the knowledge, critical thinking, and system improvement competencies required to meet the complex care needs of patients. Over 50% of survey respondents held a BSN or higher degree, and it was anticipated that they would be better equipped, based on the merits of their education and training, to respond to higher patient volume, admissions, discharges, and greater patient acuity, and hence, report reduced care omissions.

Study Limitations

There were several limitations for this project. First, the use of a convenience sample in a single, small-sized hospital reduces the generalizability of the study. Additionally, the size of the sample limited the statistical power, reducing the reliability of the findings. Furthermore, the results reflect RNs' reports of missed care and the reasons for it rather than any direct observation or verified source—for example, chart review—this could introduce bias. Third, because the project was taken by respondents online and unaided, there were no opportunities for the respondents to ask questions or seek clarifications and there was no opportunity for the PI to provide clarifications or answer questions about the survey or the project. RNs' interpretations of each question could have been influenced by traditional norms and values, which would introduce variation. Hospital structural characteristics can influence roles and responsibilities, policies, or values (re high reliability) and RN perception of care omissions may be skewed (Maloney, Fend, & Hardin, 2015). Finally, familiarity of subjects with the study's PI could have led them to be reluctant participants and/or to bias their survey responses.

Implications and Recommendations

The *MISSCARE Survey* in a small, community, Pathway to Excellence hospital, yields findings and propositions that are useful to nurse leaders. Given these findings, the Joint Commission should consider whether measurements of missed nursing care as an element of performance should be required, particularly due to the deleterious cascading consequences to patient safety and quality. Moreover, the American Nurses Credentialing Center (ANCC), underwriters for Magnet and Pathway to Excellence, may want to require hospitals to report missed care and any corrective action(s) taken as part of its designation/re-designation.

Given these findings, efforts to educate ancillary staff to become mobility mentors and to assist with and coordinate patient ambulation and turning should be prioritized. As well, developing volunteer capabilities to assist with patients who are at low risk of falls but require accompaniment for ambulation, should also be considered. Nurse leaders should engage nursing staff to understand RN workload perception; that is - what makes RNs' workloads easier/harder and the barriers to workload balance. The use of RN time-motion studies to identify key interrupters during high churn intervals and devising strategies to mitigate interruptions would seem productive. Further, measuring churn; collecting hourly admission and discharge data to understand trends, and operationalizing interventions to address churn/provide relief should be explored. To optimize RN performance, it would seem particularly important to provide leadership education to charge nurses especially in the areas of crew resource management/situational awareness. Lastly, nurse-driven staffing committees to address and make recommendations regarding nurse staffing should be considered given the literature that demonstrates their effectiveness in improving nurse perception of workload and communication (Jones, Bae, Murry, & Hamilton, 2015).

Additionally, an investigation of the relationship between missed nursing care and quality or safety outcomes (e.g., falls, medication errors) during periods of high churn, should be undertaken to better understand the impact on patients. Intentional efforts to recognize risk and leverage corrective measures for system redesign should be made. For example, by creating smaller pod locations/assignments on each unit or utilizing a modular nursing model, time-distance travel from room to room is minimized, efficiency is improved, and RN and ancillary staff teamwork is fortified, with the goal of reducing production pressures, and improving the effectiveness of care interventions (Oster & Braaten, 2016).

A focus on medical-surgical RNs was a deliberate decision by the PI, recognizing that this setting is often accompanied by patients with multiple co-morbidities and rising acuity as well as increasing patient volume and complex psychosocial demands, which influence nursing care decisions. Nurse leaders should focus on the challenges of medical-surgical RNs and reinforce education and teamwork, while building capacity for labor resources (RN, ancillary staff). These actions are likely to optimize RNs' abilities to be flexible in the care they provide and to accommodate additional work, which is imperative in avoiding missed care and increasing RNs' job satisfaction.

To better detect and prevent missed nursing care, nurse leaders should consider making rounds on medical-surgical units more consistently, and identify barriers for completing care tasks. Acknowledging care omissions and data transparency, active dialogue and shared decision-making with RNs, are first steps toward educating and problem-solving. Nurse leaders must also be adept at dispatching messages to their non-nurse counterparts, educating them on what missed nursing care is and why it occurs, the risks/benefits of care tasks that are completed or omitted, and the potential impact on outcomes, including the cost equation for the patient

(QOL, safety), and organization (reputation, monetary). This dialogue is important for safeguarding, augmenting, or re-assigning vital labor resources. In other words – the value proposition of nursing. The Pathway to Excellence designation also serves as a framework for sustaining healthy practice environments, nurse empowerment, patient care safety and quality; the structure can be leveraged to modify and improve processes to reduce missed nursing care (Dans, Pabico, Tate, & Hume, 2017); each element for practice is consistent with the Quadruple Aim and IOM recommendations for improving the work environment.

Measuring the impact of RN care omissions with patient outcomes is vital to safeguard patient care and is an opportunity for future research. The ability to identify relationships between the Nursing Database of Nursing Quality Indicators (NDNQI) nurse-sensitive measures, which reflect structure-process-outcome of nursing care, with the *MISSCARE Survey* elements, could serve as an external nursing benchmark, and is also a research opportunity. Studies of Pathway to Excellence organizations, to expand the connection between healthy work environments and the type and reasons for missed nursing care should be explored.

Conclusions

This project contributes new knowledge to previous research regarding the prevalence of and the type and reasons for missed nursing care. Findings suggest that there are environmental and work redesign factors that contribute to missed care, which nurse leaders can address to minimize care omissions. Reducing human factor errors created by production pressures experienced by misaligned labor resources (structure) and improving inefficient or ineffective processes, have the potential to reduce missed nursing care. In so doing, RNs will safeguard patient care and quality, satisfy the IOM recommendations for optimizing patient outcomes, and fulfill the Quadruple Aim.

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Appendices

Appendices List

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Appendix A

Study Variables

Section A. Type of Missed Nursing	Theoretical Definition/Subscale: Rationale for missed nursing care over current or past shift worked	Operational Definition/ Data Definition Codes	Variable Form & Measurement
<ul style="list-style-type: none"> Ambulation 	Patient ambulation occurs 3x/day or as ordered Basic need intervention	Always missed Frequently missed Occasionally missed Rarely missed Never missed	Ordinal <i>r</i>
<ul style="list-style-type: none"> Patient turning 	Patient is turned every 2 hours as indicated Basic need intervention	Always missed Frequently missed Occasionally missed Rarely missed Never missed	Ordinal <i>r</i>
<ul style="list-style-type: none"> Patient feeding 	Patient is fed/assisted while food is warm Basic need intervention	Always missed Frequently missed Occasionally missed Rarely missed Never missed	Ordinal <i>r</i>
<ul style="list-style-type: none"> Meal set-up 	Patient is not set up for meal to feed self Basic need intervention	Always missed Frequently missed Occasionally missed Rarely missed Never missed	Ordinal <i>r</i>
<ul style="list-style-type: none"> Medication timing 	Medication given within 30 minutes before or after schedule Individual need intervention	Always missed Frequently missed Occasionally missed Rarely missed Never missed	Ordinal <i>r</i>

<ul style="list-style-type: none"> Vital signs 	<p>Assessed as ordered</p> <p>Assessment</p>	<p>Always missed</p> <p>Frequently missed</p> <p>Occasionally missed</p> <p>Rarely missed</p> <p>Never missed</p>	<p>Ordinal</p> <p><i>r</i></p>
<ul style="list-style-type: none"> Intake & Output 	<p>Monitoring each shift</p> <p>Assessment</p>	<p>Always missed</p> <p>Frequently missed</p> <p>Occasionally missed</p> <p>Rarely missed</p> <p>Never missed</p>	<p>Ordinal</p> <p><i>r</i></p>
<ul style="list-style-type: none"> Documentation 	<p>Necessary data are documented in EMR</p> <p>Assessment</p>	<p>Always missed</p> <p>Frequently missed</p> <p>Occasionally missed</p> <p>Rarely missed</p> <p>Never missed</p>	<p>Ordinal</p> <p><i>r</i></p>
<ul style="list-style-type: none"> Patient teaching 	<p>Patient education includes teaching about current illness, lab testing, and diagnostic studies</p> <p>Planning</p>	<p>Always missed</p> <p>Frequently missed</p> <p>Occasionally missed</p> <p>Rarely missed</p> <p>Never missed</p>	<p>Ordinal</p> <p><i>r</i></p>
<ul style="list-style-type: none"> Emotional support 	<p>Emotional support is provided to the patient and family by the RN</p> <p>Individual need assessment</p>	<p>Always missed</p> <p>Frequently missed</p> <p>Occasionally missed</p> <p>Rarely missed</p> <p>Never missed</p>	<p>Ordinal</p> <p><i>r</i></p>
<ul style="list-style-type: none"> Patient Bath, skin care 	<p>Patient bathing and skin care is performed daily</p> <p>Basic need intervention</p>	<p>Always missed</p> <p>Frequently missed</p> <p>Occasionally missed</p> <p>Rarely missed</p> <p>Never missed</p>	<p>Ordinal</p> <p><i>r</i></p>

<ul style="list-style-type: none"> • Mouth care 	<p>Mouth care is performed at least twice per day</p> <p>Basic need intervention</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>
<ul style="list-style-type: none"> • Hand washing 	<p>Staff wash hands before and after each patient encounter</p> <p>Assessment</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>
<ul style="list-style-type: none"> • Patient discharge 	<p>Patient is discharged with appropriate plan and teaching provided</p> <p>Planning</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>
<ul style="list-style-type: none"> • Glucose monitoring 	<p>Bedside glucose monitoring is performed according to physician orders</p> <p>Assessment</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>
<ul style="list-style-type: none"> • Patient assessments 	<p>Patients assessments are performed with each change of shift</p> <p>Assessment</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>
<ul style="list-style-type: none"> • Patient reassessment 	<p>Upon any change in patient condition a focused reassessment is performed by the RN</p> <p>Assessment</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>

<ul style="list-style-type: none"> IV/Central line care and assessment 	<p>The care and assessment of IV sites or central line site is performed according to policy (each shift)</p> <p>Assessment</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>
<ul style="list-style-type: none"> Call light response 	<p>Call light response time is within 5 minutes of activation</p> <p>Individual need assessment</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>
<ul style="list-style-type: none"> As needed medication 	<p>As needed (PRN) medication requests are acted on within 15 minutes</p> <p>Individual need assessment</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>
<ul style="list-style-type: none"> Medication Effectiveness 	<p>An assessment of medication effectiveness is performed within one hour of medication administration</p> <p>Assessment</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>
<ul style="list-style-type: none"> Interdisciplinary care conferences 	<p>Interdisciplinary care conferences are attended whenever one is held for patient assigned</p> <p>Planning</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>
<ul style="list-style-type: none"> Toileting 	<p>Patient is assisted with toileting needs within 5 minutes of request</p> <p>Basic need intervention</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>

<ul style="list-style-type: none"> • Skin/wound care 	<p>Skin and wounds, assessed by documenting the Braden assessment and any evidence of skin breakdown/wounds each shift</p> <p>Basic need intervention</p>	<p>Always missed Frequently missed Occasionally missed Rarely missed Never missed</p>	<p>Ordinal <i>r</i></p>
Section B. Reasons for missed care	Theoretical Definition/Subscale: Rationale for missed nursing care over current or past shift worked	Operational Definition/ Data Definition Codes	Variable Form & Measurement
<ul style="list-style-type: none"> • Staffing 	<p>An inadequate number of RN staff is available to care for the assigned number of patients</p> <p>Labor resources</p>	<p>Reason: Significant-Moderate-Minor or not a reason</p>	<p>Categorical N and %</p>
<ul style="list-style-type: none"> • Urgent patient situation 	<p>Services required to prevent serious deterioration of health of a patient and reduces RN time for other activities</p> <p>Labor resources</p>	<p>Reason: Significant-Moderate-Minor or not a reason</p>	<p>Categorical N and %</p>
<ul style="list-style-type: none"> • Patient volume or acuity 	<p>Increased census or NHPPD and/or degree of patient illness</p> <p>Labor resources</p>	<p>Reason: Significant-Moderate-Minor or not a reason</p>	<p>Categorical N and %</p>
<ul style="list-style-type: none"> • Assistive personnel 	<p>Sufficient ancillary personnel to assist with supportive functions</p> <p>Labor resources</p>	<p>Reason: Significant-Moderate-Minor or not a reason</p>	<p>Categorical N and %</p>
<ul style="list-style-type: none"> • Patient assignment 	<p>Unbalanced patient assignments that create inequitable workload</p> <p>Communication</p>	<p>Reason: Significant-Moderate-Minor or not a reason</p>	<p>Categorical N and %</p>
<ul style="list-style-type: none"> • Medication unavailable 	<p>Medication not available on unit who decreases or impedes RN efficiency</p> <p>Material resources</p>	<p>Reason: Significant-Moderate-Minor or not a reason</p>	<p>Categorical N and %</p>
<ul style="list-style-type: none"> • Hand off communication 	<p>Communication when one RN transitions patient care to another RN (previous shift or sending unit)</p>	<p>Reason: Significant-Moderate-Minor or not a reason</p>	<p>Categorical N and %</p>

	Communication		
<ul style="list-style-type: none"> Ancillary department support 	Support department assistance did not complete care (example: Physical Therapy) Communication	Reason: Significant-Moderate-Minor or not a reason	Categorical N and %
<ul style="list-style-type: none"> Supplies/equipment 	Supplies or equipment is not available Material resources	Reason: Significant-Moderate-Minor or not a reason	Categorical N and %
<ul style="list-style-type: none"> Supplies/equipment 	Supplies/equipment is not functioning correctly Material resources	Reason: Significant-Moderate-Minor or not a reason	Categorical N and %
<ul style="list-style-type: none"> Teamwork 	Deficiency in support from team members does not allow for back up Communication	Reason: Significant-Moderate-Minor or not a reason	Categorical N and %
<ul style="list-style-type: none"> Communication & Tension 	Breakdown in communication impedes workflow and creates tension with Ancillary support departments Communication	Reason: Significant-Moderate-Minor or not a reason	Categorical N and %
<ul style="list-style-type: none"> Communication & Tension 	Breakdown in communication impedes workflow and creates tension with: Nursing Team Communication	Reason: Significant-Moderate-Minor or not a reason	Categorical N and %
<ul style="list-style-type: none"> Communication & Tension 	Breakdown in communication impedes workflow and creates tension with: Medical Staff Communication	Reason: Significant-Moderate-Minor or not a reason	Categorical N and %
<ul style="list-style-type: none"> Nursing assistant communication 	Deficiency in care not communicated to RN Communication	Reason: Significant-Moderate-Minor or not a reason	Categorical N and %

<ul style="list-style-type: none"> Caregiver presence 	A caregiver (RN or CNA) is off the unit/unavailable Communication	Reason: Significant-Moderate-Minor or not a reason	Categorical N and %
<ul style="list-style-type: none"> Admit/discharge numbers 	Increased number of admissions or discharges creates efficiency/workflow barriers Labor resources	Reason: Significant-Moderate-Minor or not a reason	Categorical N and %
Section C: RN Characteristics	Theoretical Definition/Subscale:	Operational Definition/ Data Definition Codes	Variable Form & Measurement † = variable tested, rho
<ul style="list-style-type: none"> Age 	Chronological age in years; Years of age, defined by categories	1 = 25 to 34 years old 2 = 35 to 44 years old 3 = 45 to 54 years old 4 = 55 to 64 years old 5 = Over 65 years old	Categorical N and % †
<ul style="list-style-type: none"> Gender 	Patient's biological sex	1=Male 2=Female	Categorical N and %
<ul style="list-style-type: none"> Educational Level 	Level of education completed	1= LPN Diploma 2= RN Diploma 3= Associates Degree in nursing (RN) 4 = BSN 5 = Bachelor's degree outside of nursing 6 = MSN or higher 7 = Master's degree or higher outside nursing	Categorical N and % †
<ul style="list-style-type: none"> Job title/role 	Position held by employee, level of position or responsibility	1 = Staff RN 2 = Staff LPN 3 = Nurse Manager	Categorical N and %

<ul style="list-style-type: none"> Worked hours per week 	Total # worked hours per week	1 = < 30 hours 2 = 30 hours or more	Categorical N and % †
<ul style="list-style-type: none"> Time of day hours are worked 	Time of day work hours occur	1 = Days (8 or 12 hr) 2 = Evenings (8 or 12 hr) 3 = Nights (8 or 12 hr) Rotation between days, nights or evening	Categorical N and % †
<ul style="list-style-type: none"> Experience in role 	Length of time in position	1 = up to 6 months 2 = greater than 6 months to 2 years 3 = greater than 2 years to 5 years 4 = greater than 5 years to 10 years 5 = greater than 10 years	Categorical N and % †
<ul style="list-style-type: none"> Experience on current patient care unit 	Time worked on unit	1 = up to 6 months 2 = greater than 6 months to 2 years 3 = greater than 2 years to 5 years 4 = greater than 5 years to 10 years 5 = greater than 10 years	Categorical N and % †
<ul style="list-style-type: none"> Shift hours most often worked 	Duration of shift typically worked - # of hours per shift	1 = 8 hour (hr) 2 = 10 hr 3 = 12 hr 4 = 8 & 12 hr – rotating	Categorical N and % †
<ul style="list-style-type: none"> Overtime 	Additional hours worked beyond scheduled work hours, over past three months	1 = None 2 = 1-12 hr 3 = more than 12 hr	Categorical N and %

<ul style="list-style-type: none"> Absenteeism 	Missed work due to illness, injury, extra rest needed, over past three months	1 = None 2 = 1 day or shift 3 = 2-3 days or shifts 4 = 4-6 days or shifts 5 = over 6 days or shifts	Categorical N and %
<ul style="list-style-type: none"> Intent to leave 	Time frame that staff member intends to leave/depart organization	1 = next 6 months 2 = next year 3 = no plan to leave	Categorical N and % †
<ul style="list-style-type: none"> Satisfaction - position 	Level of staff satisfaction in current position	Very satisfied Satisfied Neutral Dissatisfied Very dissatisfied	Ordinal <i>r</i> †
<ul style="list-style-type: none"> Satisfaction - career 	Level of satisfaction with nursing career	Very satisfied Satisfied Neutral Dissatisfied Very dissatisfied	Ordinal <i>r</i> †
Section D: Unit Characteristics	Theoretical Definition/Subscale:	Operational Definition/ Data Definition Codes	Variable Form & Measurement
<ul style="list-style-type: none"> Satisfaction - teamwork 	Level of satisfaction with the degree of teamwork between inter-professional staff on the unit	Very satisfied Satisfied Neutral Dissatisfied Very dissatisfied	Ordinal <i>r</i>
<ul style="list-style-type: none"> Perception of adequate staffing 	Does staff member feel that the unit is staffed appropriately	1 = 100% of time 2 = 75% of time 3 = 50% of time 4 = 25% of time 5 = 0% of time	Categorical N and %

<ul style="list-style-type: none"> • Number patients cared for 	<p>Nurse to patient ratio</p>	<p>1 RN = 2 patients (pts), 1 RN = 3 pts, 1 RN = 4 pts, 1 RN = 5pts, 1 RN = 6 pts, 1 RN = 7 pts</p>	<p>Categorical N and %</p>
<ul style="list-style-type: none"> • Admitted patients: (includes admissions and transfers) 	<p>Raw # patients cared for on current or last shift worked; change/tempo of unit</p>	<p>1 = 0 pts, 2 = 1pts, 3 = 2 pts 4 = 3 pts, 5 = 4 pts, 6 = 5 pts</p>	<p>Categorical N and %</p>
<ul style="list-style-type: none"> • Patient discharges: (discharges & transfers to other unit) 	<p>Raw # patients discharged for the current of last shift worked; change/tempo of unit/churn</p>	<p>1 = 0 pts, 2 = 1 pts, 3 = 2 pts 4 = 3 pts, 5 = 4 pts, 6 = 5 pts</p>	<p>Categorical N and %</p>
<ul style="list-style-type: none"> • Nurse to patient ratio 	<p>Raw # of patients assigned during a shift</p>	<p>1 = 1:4pts, 2 = 1:5pts , 3 = 1:6pts, 4 = 1:7pts</p>	<p>Ordinal <i>r</i></p>

Appendix B

Power point presentation

MISSED NURSING CARE

Research Study:
Anne Schmidt, MSN, RN, APRN, CENP

Missed Nursing Care

- Missed nursing care – not historically addressed:
 - Lack of open acknowledgement by staff that an error had occurred, hindered by a fear of repercussions, retribution or powerlessness to remedy the situation.
- Kalisch (2006) identified nine elements of missed nursing care:
 - Discharge planning
 - Patient education
 - Emotional support
 - Hygiene and mouth care
 - Intake and output
 - Ambulation, turning
 - Feeding patients who require assistance
 - Vital sign surveillance

Aims

- **Study Aims:**
 - Identify areas/types of missed nursing care on medical-surgical units
 - Identify the reasons for missed nursing care on medical-surgical units
 - Explore opportunities for reducing missed nursing care and safeguarding patients on medical-surgical units

Next Steps

- **Study:** cross-sectional, correlational design
- **Convenience sample** of nurses who complete the *MISSCARE SURVEY*.
- The survey consists of:
 - Demographic questions
 - Section A (aspects of nursing care missed – 24 items)
 - Section B (rationale for missed nursing care – 17 items).
- **Request:** RNs who work on the three units identified as medical, surgical or combined (medical-surgical):
 - Per diem, part-time or full-time
 - Float/contract RN's, with a primary position of working on the medical-surgical units
 - Probationary period: Not included

Missed Care

- Care that is omitted
- Concept of "missed nursing care" developed by Dr. Beatrice Kalisch
- Definition: "any aspect of standard, required nursing care, not provided to the patient" - care omissions are the basis for defining missed nursing care.

Why Missed Care

- **Problem Statement**
 - Missed nursing care:
 - Errors that can negatively impact patient safety,
 - Negate a patient's right to receive appropriate and safe care,
 - Potentially compromise his/her well-being or recovery
- **Previous studies:**
 - Specialty areas (intensive care, emergency department, perioperative suite)
 - Limited research on the nature and frequency of missed nursing care on medical-surgical units, where the majority of patients receive their care
 - Magnet vs. Non-Magnet – absent Pathway to Excellence

Significance

- **Nursing leaders** - responsible for implementing operational strategies to:
 - Improve the patient experience of care
 - Increase care quality
 - Mitigate patient harm
 - IOM's Aims, including care that is safe, effective, efficient and patient-centered (AHRQ, 2016)
- **Patient care outcomes** - important for reputation and marketing competitiveness, patient consumerism, and value-based reimbursement by private and government insurers
- **Identify and understand** inherent organizational relationships, variables that impact patient quality and safety, based on rationale for missed nursing care
 - Vital step in crafting strategies to improve patient outcomes

Note: Example of power point presentation for staff, Nurse Managers offered prior to activation of survey

Appendix C

Flyer examples



Calling All Med-Surg RN's:



**MISSCARE Survey: Available NOW
(Intranet page - top)**

- Missed nursing care constitutes errors that can negatively impact patient safety. There has been limited research on the nature and frequency of missed nursing care on medical-surgical units, where the majority of patients receive their care.
- The purpose of this survey is to obtain **your** feedback about the type and reasons that care might be missed (omitted), based on your work experience.
- Student: Anne Schmidt, MSN, RN – please contact me for any questions (x1599)
- Thank you for your help!

MISSCARE Survey for Med-Surg RNs



- This is the final week to participate in the MISSCARE Survey.
- The survey is 61 questions and will take < 10 min to complete. It is confidential. Please check your hospital email for additional details.
- Your feedback is important to understand the type and reasons for missed nursing care.
- This is a great opportunity to contribute to nursing knowledge!
- Thank you for your help!
- Please contact me for any questions: Anne (x1599)

Note: Example of flyers that were posted during the active survey period as reminders for staff

*Appendix D***MISSED NURSING CARE (The MISSCARE Survey)**

- ***The survey was developed by Dr. Beatrice J. Kalisch***
-

1. **Name of the unit** you work on: _____
2. I spend **the majority of my working time** on this unit: _____ yes _____ no
3. **Highest education level:**
 - 1) _____ Grade school
 - 2) _____ High School Graduate (or GED)
 - 3) _____ Associate degree graduate
 - 4) _____ Bachelor's degree graduate
 - 5) _____ Graduate degree
4. **If you are a nurse, what is the highest degree:**
 - 1) _____ LPN Diploma
 - 2) _____ RN Diploma
 - 3) _____ Associate's degree in nursing (ADN)
 - 4) _____ Bachelor's degree in nursing (BSN)
 - 5) _____ Bachelor's degree **outside** of nursing
 - 6) _____ Master's degree (MSN) or higher in nursing
 - 7) _____ Master's degree or higher **outside** of nursing
5. **Gender:** _____ Female _____ Male
6. **Age:**
 - 1) _____ Under 25 years old (<25)
 - 2) _____ 25 to 34 years old (25-34)
 - 3) _____ 35 to 44 years old (35-44)
 - 4) _____ 45 to 54 years old (45-54)
 - 5) _____ 55 to 64 years old (55-64)
 - 6) _____ Over 65 years old (65+)
7. **Job Title/Role:**
 - 1) _____ Staff Nurse (RN)
 - 2) _____ Staff Nurse (LPN)
 - 3) _____ Nursing Assistant (e.g., nurse aides/tech)
 - 4) _____ Nurse manager, assistant manager (e.g. administrators on the unit)

- 5) _____ Other [Please specify: _____]
8. Number of **hours usually worked per week** (check only one)
- 1) _____ less than 30 hours per week
 - 2) _____ 30 hours or more per week
9. **Work hours** (check the one that is most descriptive of the hours you work)
- 1) _____ Days (8 or 12 hour shift)
 - 2) _____ Evenings (8 or 12 hour shift)
 - 3) _____ Nights (8 or 12 hour shift)
 - 4) _____ Rotates between days, nights or evenings
10. **Experience in your role:**
- 1) _____ Up to 6 months
 - 2) _____ Greater than 6 months to 2 years
 - 3) _____ Greater than 2 years to 5 years
 - 4) _____ Greater than 5 year to 10 years
 - 5) _____ Greater than 10 years
11. **Experience** on your **current patient care unit:**
- 1) _____ Up to 6 months
 - 2) _____ Greater than 6 months to 2 years
 - 3) _____ Greater than 2 years to 5 years
 - 4) _____ Greater than 5 year to 10 years
 - 5) _____ Greater than 10 years
12. Which **shift** do you most often work?
- 1) _____ 8 hour shift
 - 2) _____ 10 hour shift
 - 3) _____ 12 hour shift
 - 4) _____ 8 hour and 12 hour rotating shift
 - 5) _____ Other [Please specify: _____]
13. In the past 3 month, how many hours of **overtime** did you work?
- 1) _____ None
 - 2) _____ 1-12 hours
 - 3) _____ More than 12 hours
14. In the past 3 months, how many days or shifts did you **miss work** due to illness, injury, extra rest etc. (exclusive of approved days off)?
- 1) _____ None
 - 2) _____ 1 day or shift
 - 3) _____ 2-3 days or shifts
 - 4) _____ 4-6 days or shifts
 - 5) _____ over 6 days or shifts

15. Do you plan to **leave your current position**?

- 1) _____ in the next 6 months
- 2) _____ in the next year
- 3) _____ no plans to leave

16. How often do you feel **the unit staffing is adequate**?

- 1) _____ 100% of the time
- 2) _____ 75% of the time
- 3) _____ 50% of the time
- 4) _____ 25% of the time
- 5) _____ 0% of the time

17. **On the current or last shift** you worked, how many **patients** did you care for?

17-a. how many **patient-admissions** did you have (i.e. includes transfers into the unit)?

17-b. how many **patient-discharges** did you have (i.e. includes transfers out of the unit)?

Please check one response for each question.

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
18. How satisfied are you in your current position ?					
19. Independent of your current job, how satisfied are you with being a nurse or a nurse assistant ?					
20. How satisfied are you with the level of teamwork on this unit ?					

Section A — Missed Nursing Care

Nurses frequently encounter multiple demands on their time, requiring them to reset priorities, and not accomplish all the care needed by their patients. To the best of your knowledge, **how frequently** are the following elements of **nursing care MISSED** by the nursing staff (including you) on your unit? **Check only one box for each item.**

	Always missed	Frequently missed	Occasionally missed	Rarely missed	Never missed
1) Ambulation three times per day or as ordered					
2) Turning patient every 2 hours					
3) Feeding patient when the food is still warm					
4) Setting up meals for patient who feeds themselves					
5) Medications administered within 30 minutes before or after scheduled time					
6) Vital signs assessed as ordered					
7) Monitoring intake/output					
8) Full documentation of all necessary data					
9) Patient teaching about illness, tests, and diagnostic studies					
10) Emotional support to patient and/or family					
11) Patient bathing/skin care					
12) Mouth care					
13) Hand washing					
14) Patient discharge planning and teaching					
15) Bedside glucose monitoring as ordered					
16) Patient assessments performed each shift					

	Always missed	Frequently missed	Occasionally missed	Rarely missed	Never missed
17) Focused reassessments according to patient condition					
18) IV/central line site care and assessments according to hospital policy					
19) Response to call light is initiated within 5 minutes					
20) PRN medication requests acted on within 15 minutes					
21) Assess effectiveness of medications					
22) Attend interdisciplinary care conferences whenever held					
23) Assist with toileting needs within 5 minutes of request					
24) Skin/Wound care					

Section B—Reasons for Missed Nursing Care

Thinking about the missed nursing care on your unit by all of the staff (as you indicated on Part 1 of this survey), indicate the **REASONS** nursing care is **MISSED** on your unit. **Check only one box for each item.**

	Significant reason	Moderate reason	Minor reason	NOT a reason for missed care
1) Inadequate number of RN staff				
2) Urgent patient situations (e.g. a patient's condition worsening)				
3) Unexpected rise in patient volume and/or acuity on the unit				
4) Inadequate number of assistive and/or clerical personnel (e.g. nursing assistants, techs, unit secretaries etc.)				
5) Unbalanced patient assignments				

	Significant reason	Moderate reason	Minor reason	NOT a reason for missed care
6) Medications were not available when needed				
7) Inadequate hand-off from previous shift or sending unit				
8) Other departments did not provide the care needed (e.g. physical therapy did not ambulate)				
9) Supplies/ equipment not available when needed				
10) Supplies/ equipment not functioning properly when needed				
11) Lack of back up support from team members				
12) Tension or communication breakdowns with other ANCILLARY/SUPPORT DEPARTMENTS				
13) Tension or communication breakdowns within the NURSING TEAM				
14) Tension or communication breakdowns with the MEDICAL STAFF				
15) Nursing assistant did not communicate that care was not provided				
16) Caregiver off unit or unavailable				
17) Heavy admission and discharge activity				

THANK YOU FOR YOUR PARTICIPATION!

Appendix E

Consent: Read Only

THE GEORGE WASHINGTON UNIVERSITY

WASHINGTON, DC

Informed Consent for Participation in a Research Study

Title of Research Study: Missed Nursing Care Reported by Medical-Surgical RNs in a Community Hospital

Investigator: Dr. Ellen Kurtzman, PhD, RN, FAAN

Investigator Contact Information:

George Washington University School of Nursing:

GW School of Nursing, 1919 Pennsylvania Avenue, NW, Suite 500, Washington, DC 20006

Telephone Number: 202-997-9439

Email Address: etk@gwu.edu

Why am I being invited to take part in a research study?

We invite you to take part in a research study because you are a Registered Nurse working on a medical-surgical unit.

What should I know about a research study?

- Someone will explain this research study to you. You may ask all the questions you want before you decide whether to participate.
- Participation is voluntary; whether or not you take part is up to you.
- You can agree to take part and later change your mind.
- Your decision not to take part or to stop your participation will not be held against you.
- You may take this document home to read or to discuss with your family members or doctor before deciding to take part in this research study.

Who can I talk to if I have questions?

If you have questions, concerns, or complaints, or think the research has hurt you, talk to the research team at:

Anne Schmidt, MSN, RN phone: 788-1599 email: aschmidt@southcountyhealth.org

This research is being overseen by an Institutional Review Board (“IRB”). You may talk to them at 202-994-2715 or via email at ohrirb@gwu.edu if:

- You have questions, concerns, or complaints that are not being answered by the research team or if you wish to talk to someone independent of the research team.
- You have questions about your rights as a research subject.

Why is this research being done? Missed nursing care constitutes errors that can negatively impact patient safety, and potentially compromise patient recovery. There has been limited research on the nature and frequency of missed nursing care on medical-surgical units, where the majority of patients receive their care, particularly in community sized hospitals; hence, a key interest in measuring missed nursing care on medical-surgical units at South County Hospital. The goals of the study are to:

1. Identify areas/types of missed nursing care on medical-surgical units.
2. Identify the reasons for missed nursing care on medical-surgical units.

How long will I be in the study? We expect that you will be in this research study to complete a 10 minute survey. Survey result data will be analyzed, aggregated and reported, concluding in May 2018.

How many people will take part in this research study? We expect about 124 RNs to be asked and approximately 25% (#31) people will take part in the entire study.

What happens if I agree to be in this research?

If you agree to take part in this study, you will complete the *MISSCARE Survey* via an on-line Survey Monkey®. The *MISSCARE Survey* is comprised of three main sections, demographic information (20 questions), Section A (24 questions) which consists of aspects of missed nursing care, and Section B (17 questions) that is comprised of reasons for missed nursing care (Kalisch & Williams, 2009). Likert scale(s) are used for the types and rationale for missed nursing care. For the purposes of this study, administration of the *MISSCARE Survey* will reflect your *experiences during the most recent shift worked*. You will select the best response for each item.

How long will it take me to do this? It will take approximately 10 minutes to complete the survey

What other choices do I have besides taking part in the research? N/A

What happens if I agree to be in research, but later change my mind?

You are free to refuse to participate in this survey or to withdraw your consent and discontinue participation in the survey at any time. Your participation in this study is completely voluntary and you can withdraw at any time. You are free to skip any question that you choose. Your participation will not affect your relationship with the institution(s) involved in this project. If you are a student or employee at George Washington University/George Washington University Hospital or the MFA, your academic standing/employment status will not be affected in any way should you choose not to take part or to withdraw at any time.

You may refuse to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you would otherwise be entitled.

If you decide to leave the research, please contact the research team so that they can: N/A

Is there any way being in this study could be bad for me?

The nature of the topics being addressed is not particularly sensitive or delicate. Based on prior experience, it is not expected that the questions addressed will be disturbing or distressing for subjects although completing the survey could be viewed as inconvenient and/or time consuming. It will take approximately 10 minutes to complete the survey.

The risks and discomforts associated with participation in this study are not expected to be greater than those ordinarily encountered in daily life or during the performance or routine physical or psychological examinations or tests.

What happens if I believe I am injured because I took part in this study?

You should promptly notify the research team in the event of any injury as a result of being in the study.

You will not receive any financial payments from South County Hospital, GWU, GWU Hospital and/or the GWU MFA for any injuries or illnesses. You do not waive any liability rights for personal injury by signing this form.

Will being in this study help me in any way? We cannot promise any benefits to you or others from your taking part in this research, however, your participation will benefit science and humankind by contributing new knowledge, which could positively influence patients and nursing staff (efficiency, effectiveness, safety).

Can I be removed from the research without my permission? N/A

What happens to my information collected for the research? To the extent allowed by law, we limit your personal information to people who have to review it. We cannot promise complete secrecy. The IRB and other representatives of this organization (South County Hospital) may inspect and copy of the survey information.

How will my privacy and health information be protected? N/A

Are there any costs for participating in this research? None

Time to take survey – approximately 10 minutes

Will I be paid for my participation in this research? There is no compensation provided for completing the survey.

What else do I need to know? N/A

Appendix F

RN and Unit Characteristics

Characteristic	Count/n	Percent
Age		
Under 25 years old (<25)	4	7.7
25 to 34 years old (25-34)	19	36.5
35 to 44 years old (35-44)	9	17.3
45 to 54 years old (45-54)	9	17.3
55 to 64 years old (55-64)	8	15.4
Over 65 years old (65+)	2	3.8
What unit do you most often work on?		
Float Pool – rotate areas evenly	2	3.8
Medical-Surgical	17	32.7
Orthopedics	14	26.9
Telemetry	19	36.5
Gender		
Male	2	3.8
Female	49	94.2
Highest level of education completed		
Diploma	3	5.8
Associates degree in Nursing	10	19.2
Bachelor's Degree in Nursing	28	53.8
Bachelor's degree outside of Nursing	7	13.5
Master's degree (MSN) or higher in Nursing	3	5.8
Master's degree or higher outside of nursing	1	1.9
What is your job role		
Staff Nurse	46	88.5
Clinical Leader (Charge RN)	6	11.5
Number of hours usually worked per week		
<30 hours per week	10	19.2
30 hours or more per week	42	80.8
Work hours (most descriptive of the hours you work)		
Days (8 or 12 hour shift)	21	40.4
Evenings (8 hour shift)	12	23.1
Nights (8 or 12 hour shift)	14	26.9
Rotates between days, nights or evenings	4	7.7
Experience (time) in your role as an RN		
Up to 6 months	3	5.8
Greater than 6 months to 2 years	8	15.4
Greater than 2 years to 5 years	9	17.3
Greater than 5 year to 10 years	14	26.9
Greater than 10 years	18	34.6

Characteristic	Count/n	Percent
Experience on your current patient care unit		
Up to 6 months	5	9.6
Greater than 6 months to 2 years	15	28.8
Greater than 2 years to 5 years	9	17.3
Greater than 5 year to 10 years	15	28.8
Greater than 10 years	7	13.5
Which shift do you most often work?		
8 hour shift	23	44.2
10 hour shift	5	9.6
12 hour shift	20	38.5
8 and 12 rotating shifts	3	5.8
In the past 3 months, how many hours of overtime did you work?		
None	21	40.4
1-12 hours	26	50
Over 12 hours	5	9.6
In the past 3 months, how many days or shifts did you miss work due to illness, injury, extra rest, etc. (exclusive of days off)?		
None	33	63.5
1 day or shift	13	25
2-3 days or shift	5	9.6
4-6 days or shift	1	1.9
Do you plan to leave your current position?		
No plans to leave	42	80.8
In next 6 months	3	5.8
In next year	7	13.5
How often do you feel the unit staffing is adequate?		
0% of time	3	5.8
25% of time	10	19.2
50% of time	15	28.8
75% of time	23	44.2
100% of time	1	1.9
On the current or last shift you worked, how many patients did you care for?		
1 RN to 4 Patients	5	9.6
1 RN to 5 Patients	30	57.7
1 RN to 6 Patients	6	11.5
1 RN to 7 Patients	11	21.2

MISSED NURSING CARE

Characteristic	Count/n	Percent
On the current or last shift worked, how many patient admissions did you have (i.e. includes transfers into the unit)?		
1 admission	17	32.7
2 admissions	15	28.8
3 admissions	16	30.8
4 admissions	2	3.8
5 admissions	2	3.8
On the current or last shift, how many patient-discharges did you have (i.e. includes transfers out of the unit)?		
No discharges	16	30.8
1 discharge	8	15.4
2 discharges	13	25
3 discharges	10	19.2
4 discharges	5	9.6
How satisfied are you in your current position?		
Dissatisfied	5	9.6
Neutral	10	19.2
Satisfied	28	53.8
Very satisfied	9	17.3
Independent of your current job, how satisfied are you with being a nurse?		
Dissatisfied	4	7.7
Neutral	1	1.9
Satisfied	22	42.3
Very satisfied	25	48.1
How satisfied are you with the level of teamwork on this unit?		
Dissatisfied	2	3.8
Neutral	9	17.3
Satisfied	24	46.2
Very satisfied	17	32.7

Appendix G

Prevalence and Type(s) of Missed Nursing Care: (*) = Highest %

Type of Missed Nursing Care	Count/n	Percent	Top 5
Ambulation three times per day or as ordered			
Never missed	1	1.9	
Rarely missed	12	23.1	
Occasionally missed	20	38.5	
Frequently missed	15	28.8	*
Always missed	4	7.7	*
Turning patient every 2 hours			
Never missed	1	1.9	
Rarely missed	10	19.2	
Occasionally missed	23	44.2	
Frequently missed	15	28.8	*
Always missed	3	5.8	*
Feeding patient when the food is still warm			
<i>Not applicable during shift</i>	4	7.7	
Rarely missed	18	33.3	
Occasionally missed	19	36.5	
Frequently missed	10	18.5	
Always missed	1	1.9	
Setting up meals for the patients who feed themselves			
<i>Not applicable during shift</i>	3	5.8	
Never missed	5	9.6	
Rarely missed	22	42.3	
Occasionally missed	16	30.8	
Frequently missed	3	5.8	
Always missed	2	3.8	
Medications administered 30 min. before/after schedule			
Never missed	1	1.9	
Rarely missed	10	19.2	
Occasionally missed	29	55.8	
Frequently missed	11	21.2	*
Always missed	1	1.9	*
Vital signs assessed as ordered			
Never missed	3	5.8	
Rarely missed	31	59.6	
Occasionally missed	18	34.6	
Frequently missed	0	0	
Always missed	0	0	
Monitoring intake and output			
Never missed	1	1.9	
Rarely missed	11	21.2	
Occasionally missed	28	53.8	
Frequently missed	12	23.1	*
Always missed	0	0	

MISSED NURSING CARE

Type of Missed Nursing Care	Count/n	Percent	
Full documentation of all necessary data			
Never missed	3	5.8	
Rarely missed	18	34.6	
Occasionally missed	28	53.8	
Frequently missed	2	3.8	
Always missed	1	1.9	
Patient teaching about illness, tests, and diagnostic studies			
Never missed	2	3.8	
Rarely missed	14	26.9	
Occasionally missed	27	51.9	
Frequently missed	9	17.3	
Always missed	0	0	
Emotional support to patient and/or family			
Never missed	5	9.6	
Rarely missed	19	36.5	
Occasionally missed	22	42.3	
Frequently missed	6	11.5	
Always missed	0	0	
Patient bathing or skin care			
Never missed	2	3.8	
Rarely missed	18	34.6	
Occasionally missed	25	48.1	
Frequently missed	7	13.5	
Always missed	0	0	
Patient mouth care			
<i>Not applicable during shift</i>	1	1.9	
Never missed	1	1.9	
Rarely missed	13	25	
Occasionally missed	26	50	
Frequently missed	10	19.2	
Always missed	1	1.9	
Hand washing			
Never missed	17	32.7	
Rarely missed	29	55.8	
Occasionally missed	5	9.6	
Frequently missed	1	1.9	
Always missed	0	0	

MISSED NURSING CARE

Type of Missed Nursing Care	Count/n	Percent	
Patient discharge planning or teaching			
Never missed	10	19.2	
Rarely missed	30	57.7	
Occasionally missed	9	17.3	
Frequently missed	3	5.8	
Always missed	0	0	
Patient assessments performed each shift			
Never missed	25	48.1	
Rarely missed	26	50	
Occasionally missed	1	1.9	
Frequently missed	0	0	
Always missed	0	0	
Focused reassessment according to patient condition			
Never missed	14	26.9	
Rarely missed	28	53.8	
Occasionally missed	10	19.2	
IV or central line site care and assessments performed according to hospital policy			
Never missed	11	21.2	
Rarely missed	26	50	
Occasionally missed	13	25	
Frequently missed	2	3.8	
Response to call light is initiated within 5 minutes			
Never missed	4	7.7	
Rarely missed	20	38.5	
Occasionally missed	20	38.5	
Frequently missed	8	15.4	
PRN medication requests are acted on within 15 minutes			
Never missed	3	5.8	
Rarely missed	23	44.2	
Occasionally missed	24	46.2	
Frequently missed	2	3.8	
Assess effectiveness of medication			
Never missed	6	11.5	
Rarely missed	24	46.2	
Occasionally missed	19	36.5	
Frequently missed	3	5.8	
Always missed	0	0	

MISSED NURSING CARE

Type of Missed Nursing Care	Count/n	Percent	
Attend interdisciplinary care conferences whenever held			
<i>Not applicable during shift</i>	12	23.1	
Never missed	1	1.9	
Rarely missed	3	5.8	
Occasionally missed	12	23.1	
Frequently missed	18	34.6	*
Always missed	6	11.5	*
Bedside glucose monitoring as ordered			
Never missed	24	46.2	
Rarely missed	26	50	
Occasionally missed	2	3.8	
Frequently missed	0	0	
Always missed	0	0	
Assist with toileting needs within 5 minutes of request			
Never missed	1	1.9	
Rarely missed	23	44.2	
Occasionally missed	22	42.3	
Frequently missed	6	11.5	
Always missed	0	0	
Skin or wound care			
Never missed	6	11.5	
Rarely missed	26	50	
Occasionally missed	18	34.6	
Frequently missed	2	3.8	
Always missed	0	0	

Appendix H

Reasons for Missed Nursing Care by response

Reason for Missed Nursing Care	Count/n	Percent
Inadequate number of staff		
Minor reason	8	15.4
Moderate reason	18	34.6
Significant reason	26	50
Urgent patient situation		
NOT a reason for missed care	6	11.5
Minor reason	24	46.2
Moderate reason	12	23.1
Significant reason	10	19.2
Unexpected rise in patient volume and/or acuity on the unit		
NOT a reason for missed care	2	3.8
Minor reason	5	9.6
Moderate reason	25	48.1
Significant reason	19	36.5
Inadequate number of assistive and/or clerical personnel (nursing assistants, techs, unit secretaries)		
NOT a reason for missed care	1	1.9
Minor reason	2	3.8
Moderate reason	20	38.5
Significant reason	29	55.8
Unbalanced patient assignment		
NOT a reason for missed care	4	7.7
Minor reason	11	21.2
Moderate reason	16	30.8
Significant reason	21	40.4
Medications were not available when needed		
NOT a reason for missed care	2	3.8
Minor reason	17	32.7
Moderate reason	24	46.2
Significant reason	9	17.3
Inadequate hand-off from previous shift or sending (transferring) unit		
NOT a reason for missed care	4	7.7
Minor reason	31	59.6
Moderate reason	15	28.8
Significant reason	2	3.8

Reasons for Missed Nursing Care	Count/n	Percent
Other departments did not provide the care needed (example: Physical Therapy did not ambulate)		
NOT a reason for missed care	8	15.4
Minor reason	30	57.7
Moderate reason	13	25
Significant reason	1	1.9
Supplies or equipment not functioning properly when needed		
NOT a reason for missed care	2	3.8
Minor reason	20	38.5
Moderate reason	21	40.4
Significant reason	9	17.3
Lack of back up support from team members (other unit staff)		
NOT a reason for missed care	9	17.3
Minor reason	25	48.1
Moderate reason	12	23.1
Significant reason	6	11.5
Supplies or equipment not available when needed		
NOT a reason for missed care	3	5.8
Minor reason	16	30.8
Moderate reason	27	51.9
Significant reason	6	11.5
Tension or communication breakdowns with other ancillary support departments (DI, Lab, other)		
NOT a reason for missed care	7	13.5
Minor reason	24	46.2
Moderate reason	15	28.8
Significant reason	6	11.5
Tension or communication breakdowns within the Nursing Team		
NOT a reason for missed care	13	25
Minor reason	30	57.7
Moderate reason	6	11.5
Significant reason	3	5.8
Tension or communication breakdown with Medical Staff (a cause for ALL/ANY Missed Care occurrences)		
NOT a reason for missed care	8	15.4
Minor reason	25	48.1
Moderate reason	15	28.8
Significant reason	4	7.7

Reasons for Missed Nursing Care	Count/n	Percent
Nursing Assistant did not communicate that care was NOT provided (a cause for ALL/ANY Missed Care occurrences)		
NOT a reason for missed care	6	11.5
Minor reason	23	44.2
Moderate reason	16	30.8
Significant reason	7	13.5
Caregiver (RN or CNA) off unit or unavailable (a cause for ALL/ANY Missed Care occurrences)		
NOT a reason for missed care	18	34.6
Minor reason	23	44.2
Moderate reason	10	19.2
Significant reason	1	1.9
Heavy admission and discharge activity (a cause for ALL/ANY Missed Care occurrences)		
NOT a reason for missed care	1	1.9
Minor reason	4	7.7
Moderate reason	17	32.7
Significant reason	30	57.7

Appendix I

Association of RN characteristics and missed nursing care type

RN Characteristic	Ambulation	Turning	Feeding	Administration of medication	Monitoring intake and output	Attend care conferences
Age	.013	.014	.119	.114	.034	.085
Education level	.095	.275*	.244	.021	.096	.159
# hours worked/week	.147	.147	.246	.034	.077	.224
Time of day worked	.350*	.340*	.362**	.106	.420**	.083
Nursing experience (# years)	.137	.166	.086	.005	.020	.200
Current # years on unit	.104	.069	.074	.090	.041	.176
# hours/shift	.114	.026	.060	.096	.071	.025
# hours overtime	.024	.126	.060	.047	.253	.082
# missed shifts	.326*	.184	.273	.069	.011	.274*
Plans to leave position	.109	.098	.000	.048	.081	.038
Position satisfaction	.335*	.375**	.275*	.307*	.226	.126
Nursing satisfaction	.276*	.316*	.191	.072	.158	.148

* $p \leq 0.05$; ** $p \leq 0.001$ () = correlation

Appendix J

A comparison of most prevalent missed nursing care types, according to previous studies

Author	Ambulation	Medication assessments	Timely Medication Admin.	Turning	Mouth Care	Patient Teaching	Care Conference	Timely call light response	Glucose monitoring	Patient assessment	Hand-washing	Intake & Output
Kalisch, Landstrom, & Williams, 2009	X	X		X	X	X						
Kalisch, Tschannen, Lee, & Friese, 2011	X		X	X			X					
Maloni, Fenci, & Hardin, 2015	X		X		X		X	X				
Winett, Rottet,	X		X		X							

Schmitt, Wathen, & Wilson, 2016												
McMullen, et al., 2017									X	X	X	
Schmidt, Kurtzman, & Welton, 2018	X		X	X			X					X

Appendix K

A comparisons of reasons for missed nursing care, according to previous studies

Author	Inadequate # of staff	Inadequate # assistive personnel	Unexpected rise in patient volume	Medications not available when needed	Heavy admission and discharge	Urgent patient situation	Communication between disciplines	Unbalanced assignments
Kalisch, Landstrom, & Williams, 2009	X	X	X	X		X		
Kalisch, Tschannen, Lee, & Friese, 2011	X	X	X	X	X			
Malony Fenci, & Hardin, 2015	X	X	X	X	X			
Winett, Rottet, Schmitt, Wathen, & Wilson, 2016	X	X	X	X	X	X		
McMullen, et al., 2017	X	X		X			X	
Schmidt, Kurtzman, & Welton, 2018	X	X	X	X	X			X

