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An Exploration Of Charge Nurse Decision-Making Related To The Nurse-Patient Assignment On Adult Medical-Surgical Inpatient Units

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Abstract
ABSTRACT

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Colin Plover

Julie Sochalski, PhD, RN, FAAN

Statement of the Problem: In adult inpatient medical-surgical settings, the nurse-patient assignment serves as a strategy to organize the delivery of nurse-patient care. How nurse-patient care is organized through the nurse-patient assignment affects both nurse and patient outcomes, yet no best practice method of developing the nurse-patient assignment exists. Current literature demonstrates limited investigations of charge nurse reflections on their decision-making related to the nurse-patient assignment. Charge nurse perspectives are important because charge nurses drive the decision-making through which patient care is allocated. Despite their integral role, little is known about charge nurse perspectives on the process of the development of the nurse-patient assignment, what factors charge nurses consider and how they consider them when allocating patient care.

Procedure and Methods: A qualitative descriptive approach was chosen and a semi-structured interview guide was used to conduct interviews with 18 charge nurses across four medical-surgical units. Attention was paid to the process of patient care allocation through the nurse-patient assignment, the factors which charge nurses found to be the most and least important, and how they prioritize these factors in their decision-making process.

Results: The interviews revealed both common and divergent practices with respect to charge nurses' process of developing the nurse-patient assignment, the factors that they considered, and how they considered these factors when making patient care allocation decisions. These common and divergent practices were identified by themes and sub-themes respectively. Themes identified how all charge nurses described processes of gathering information involving the application of frameworks with shared aims through which they synthesized specific factors in common ways to develop an assignment that aligned with a common constellation of goals. Sub-themes identified variation with respect to where charge nurses sourced their information, the factors they considered, their strategies for considering factors, how they considered factors, factor terminology and their specific goals.

Conclusions: The insight this investigation provides into charge nurse development of the nurse-patient assignment has implications for practice environments that include ways to inform research which may serve to improve patient safety, nurse outcomes and the efficiency and cost effectiveness with which patient care is organized and delivered.

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AN EXPLORATION OF CHARGE NURSE DECISION-MAKING RELATED TO THE NURSE-PATIENT ASSIGNMENT ON ADULT MEDICAL-SURGICAL INPATIENT UNITS

Colin Plover

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Introduction

Specific Aims

In adult inpatient medical-surgical units, every nurse is assigned patient care each shift through the nurse-patient assignment. The allocation of patient care through the nurse-patient assignment, done by a charge nurse, directly and materially affects the unit's work climate and both nurse and patient outcomes. Currently, however, no best practice methods exist to guide the allocation of patient care via the nurse-patient assignment in adult inpatient medical-surgical units. Diverse methods with limited nursing-driven evidence are used to guide patient care allocation strategies (Fairbrother, Jones, & Rivas, 2010; Willis, Henderson & Toffoli; 2012).

Nurse-to-patient ratios represent one method employed to guide the delivery of patient care. In some circumstances nurse-to-patient ratios are complemented by patient classification systems which aim to characterize, enumerate and measure factors influencing nursing work such as nursing patient-care tasks, patient acuity and time associated with patient-care (Canabarro, Velozo & Eidt, 2010; Guccione, Morena, Pezzi, et al. 2004; Seago, 2002). Although these methods inform health systems about workload dynamics they do not inform how to optimize the match between nurses and patient care each shift. Similarly, they do not provide insight into how and in what manner charge nurses perceive and consider such variables when making nurse-patient assignments.

Charge nurse perspectives are fundamental to the process of creating the nurse-patient assignment because their decision-making drives nurse-patient care allocation each shift. Despite their integral role, little is known about the steps or process involved

with patient care allocation from charge nurse perspectives. More specifically, the decision-making process through which charge nurses develop the nurse-patient assignment, including what factors charge nurses consider and how they consider them, is largely unexplored.

The value of pursuing qualitative research geared towards nurse-patient care allocation decision-making is echoed by researchers who believe "that instead of increasing nurse-patient ratios, clinicians' efforts to improve patient safety should rely on more efficient and effective nurse-patient assignments" (Allen, 2015). The investigation of the perspectives of charge nurses can serve to advance the dialogue around patient care allocation, inform nurse-patient allocation strategies, develop training for charge nurses and contribute to further research and best practice. The Joint Commission reiterated this call for improved staffing effectiveness and identified the value of "input from clinical staff" for the assessment and advancement of staffing effectiveness (The Joint Commission, 2014).

This qualitative descriptive investigation addressed important gaps in the literature by investigating the perspectives of charge nurses responsible for patient care allocation and the factors that influenced their decision-making through semi-structured interviews. The investigation focused on charge nurses in medical-surgical units.

Specific Aims:

1) Describe charge nurses' perspectives of patient care allocation

a. Describe the process of patient care allocation through the nurse-patient assignment

2) Describe charge nurses' perspectives on the factors that influence nurse-patient care allocation decision-making

a. Identify what factors charge nurses find to be the most and least important

b. Describe how they prioritize these factors in the decision-making process of allocation

Background

The allocation of patient care is a complex process that directly involves nurses. Nurses are central to the process because they drive the decision-making through which patient care is allocated each shift. Nurses responsible for the allocation of patient care are often identified as a "charge nurse" (Berbarie, 2010). In other settings, however, they may be identified by some analogous term such as "unit supervisor" or "shift coordinator" (Berbarie, 2010). Regardless of their title, the role of the charge nurse often includes various day-to-day managerial roles while simultaneously providing some level of patient care, patient care coordination, or patient care support for other nurses (Allen, 2012; Burns, Eagleton, Golden, & Thompson, 2009; Fulks, & Thompson, 2008).

One of the principle responsibilities of the charge nurse includes the allocation of patient care to nurses identified as the nurse-patient assignment (Allen, 2012). The nurse-patient assignment involves matching nurses with patients for a designated period for the provision of nursing care (Allen, 2012). The development of the nurse-patient assignment, through the allocation of nurse-patient care, is a complex process because of the multitude of factors relevant to the process that are associated with nurse and patient outcomes.

The background section will first introduce the process of patient care allocation. A description of the process of patient care allocation is fundamental to understanding the decision-making of charge nurses. Additionally, the background section will outline research-driven factors relevant to patient care allocation that have implications for nurse and patient outcomes. The literature provided on factors is not meant to be a comprehensive review of all relevant factors because the focus of this dissertation is not the investigation of factors. A discussion of factors, however, is essential to both understanding the decision-making of charge nurses and to frame the line of questioning of charge nurses. The discussion of factors will facilitate inquiry into what factors charge nurses consider and how charge nurses prioritize them in the decision-making process of patient-care allocation.

The factors to be explored fall under categories of: the patients, the nurses and the physical environment. These factors represent the three primary variables in the process of patient care allocation. Unruh and Fottler (2006), Fitzpatrick and Wallace (2006), and Allen (2012) specifically outline these as critical factors to consider when analyzing and investigating workload dynamics and inpatient patient care allocation.

Overview of Patient Care Allocation Process.

In adult inpatient medical surgical settings, one nurse bears the responsibility for the allocation of patient care among nurses each shift. The nurse with this responsibility is often identified as the charge nurse (Berbarie, 2010). The charge nurse allocates patient care through the assessment of the available nursing resources and the amount and type of work for the upcoming shift (Sherman, & Eggenberger, 2009).

The process involves the charge nurse identifying the number of patients on their given medical-surgical unit and the number of nurses assigned to work that shift. The patients are then divided into groups and each of these groups is assigned to a nurse (Allen, 2012). These represent the main steps in the process of patient care allocation in adult inpatient medical-surgical units.

The process of patient care allocation, however, is more complex than these steps convey. The complexity of patient care allocation is driven partly by a lack of best practice methods. This results in the use of diverse methods with limited nursing driven evidence to guide patient care allocation strategies (Fairbrother, 2010; Willis, Henderson, & Toffoli; 2012). One method used to guide the process of patient care allocation includes a nurse-to-patient ratio approach.

The Process of Patient Care Allocation: Nurse-To-Patient Ratios.

Standardized nurse-to-patient ratios set standards which limit the number of patients for whom a single nurse is responsible for providing care to on any given shift. The American Nurses Association (2013) reports that 13 states have some form of law or regulation that addresses nurse staffing in hospitals. California, however, is the only state that stipulates through legislation that a minimum nurse-to-patient ratio be consistently maintained on inpatient units (ANA, 2013). In California, the nurse-to-patient ratio approach to patient care allocation was a result of "several years of intense lobbying by unions representing California nurses" yielding the passage of Assembly Bill 394 (Coffman, Seago, & Spetz, 2002, p. 54).

A program of research that illustrates the association of increased workload per nurse with poorer nurse and patient outcomes provides some evidence to support unit

based nurse-to-patient ratio strategies as a means of informing workload allocation as it related to the delivery of patient care. Specifically, Aiken, Clarke, Sloane, Sochalski, and Silber (2002) demonstrate that "each additional patient per nurse was associated with a 7% increase in the likelihood of dying within 30 days of admission and a 7% increase in the odds of failure-to-rescue" (p. 1987). Their work also identified that each additional patient assigned to a nurse corresponded with a 23% increase in burnout as well as a 15% increase in job dissatisfaction (Aiken, Clarke, Sloane, et al., 2002). The research conducted by Aiken and colleagues (Aiken, Clarke, Sloane, et al., 2002) provided evidence, adding context to the debate over standardized nurse-to-patient ratios as a means of limiting workload allocated to each nurse (Coffman, Seago, & Spetz, 2002; Upenieks, Kotlerman, Akhavan, Esser, & Ngo, 2007).

The approach to allocating workload with nurse-to-patient ratios, however, remains controversial. Upenieks, Kotlerman, Akhavan, Esser, and Ngo (2007), believe that "much more remains to be learned about staffing policies before mature links may be made regarding set staffing ratios and patient outcomes" (p. 244). Similarly, Sundaramoorthi, Chen, Rosenberger, Kim, and Buckley-Behan (2009) explain that "static nurse-to-patient ratios ignore the differences in patient mix, care unit, hospital layout, and nurse resources across different hospitals" (p. 252). Sundaramoorthi et al. (2009) identify several professional organizations including, the American Organization of Nurse Executives (AONE), the Society for Health Systems (SHS), and the Healthcare Information and Management Systems Society (HIMSS) that do not support mandatory nurse-to-patient ratios. Sundaramoorthi et al. (2009) explain that "instead of statically limiting the number of patients per nurse, it is important to optimize the nurse-patient

assignments for a balanced workload with a hospital specific model…" and that "in the literature, most of the relevant research focuses on nurse budgeting, nurse scheduling (rostering), and nurse re-scheduling methodologies and does not address the nurse-to-patient assignment issue" (p. 253).

Uncertainty about how to best manage the complexity of inpatient clinical environments contributes to the controversy related to the use of standardized nurse-to-patient ratios. Coffman, Seago, and Spetz (2002) discuss potential unintended consequences and a lack of research for standardized nurse-to-patient ratios as a strategy for inpatient clinical environments. Likewise, Fitzpatrick and Wallace (2006) provide commentary about nurse-to-patient ratio strategies, describing that "a fixed number of nurses in a particular patient care unit guaranteed that there would be frequent incongruity between nursing resources and care requirement" (p. 256). Furthermore, Reiter, Harless, Pink, and Mark (2012) identify that minimum nurse-to-patient ratios can put substantial economic pressure on hospitals.

The evidence illustrates that nurse-to-patient ratios provide benchmarks for workload trends; however, they do not capture the nuances of dynamic work environments, which can appreciably effect the amount of work and both patient and nurse outcomes. Given the lack of evidence, many clinical settings do not employ standardized nurse-to-patient ratios and others supplement approaches to nurse patient care allocation with other strategies. An understanding of the nature and diversity of approaches to the process of patient care allocation is important when considering charge nurse decision-making because they identify how decisions can be influenced.

The Process of Workload Allocation: Beyond Nurse-To-Patient Ratios.

The use of nurse-to-patient ratios is not universal. Various clinical settings recognize the limitations of nurse-to-patient ratios as a means of guiding the process of patient care allocation. In some circumstances, nurse-to-patient ratio strategies are complemented or supplanted by patient classification systems which aim to characterize, enumerate and measure factors influencing nursing work such as nursing patient-care tasks, patient acuity and time associated with patient-care (Canabarro, Velozo & Eidt, 2010; Guccione, Morena, Pezzi et al. 2004, Seago 2002). Other clinical settings employ "pod" systems as part of their process of patient care allocation. Donahue (2009) does not use the term "pod" as an acronym but rather a term to denote an organizational approach to the development of nurse-patient assignments. This "pod" system consists of an organizational structure that guide the development of nurse-patient assignments by dividing a nursing unit into groups of rooms that constitute a "pod", to which nurses are assigned in teams (Donahue, 2009). Ultimately, the implementation of more nuanced and complex approaches to the process of patient care allocation that extend beyond just nurse-to-patient ratios and patient classification systems are supported by literature.

Literature on nursing workload highlights the necessity to consider numerous factors when assessing appropriate staffing levels and allocation practices (Fitzpatrick, & Wallace, 2006). These include, but are not limited to, assessments of the workload of patients sometimes identified as the intensity of nursing care. Unruh and Fottler (2006) identify six factors that contribute to the level of intensity of nursing care that are relevant to the allocation of workload:

> (1) other human resources, such as support staff; (2) physical resources, such as unit layout; (3) the work design and technology, such as the level of

> computerization and model of nursing care; (4) administrative practices; (5) the severity of the patients being cared for; and (6) the turnaround time to produce the product (patient turnover or throughput) (p. 600).

These represent a few of the known factors that can affect patient care workload and are suggested to be considered in the process of patient care allocation.

The relevance of, and recommendations to, consider factors such as those outlined by Unruh and Fottler (2006) are supported by research and by professional organizations. Fitzpatrick and Wallace (2006) outline an American Nurses Association's (ANA) recommendation that discusses the importance of assessing nursing intensity. They identify nursing intensity as consisting of several critical attributes which focus on time frames for care, the number of nursing care hours provided, the education levels of the nurses, the nurses years of experience, years within a specific specialty and years of experience in the specific setting where care is delivered.

Research also suggests that these factors do not constitute a comprehensive list of all the factors that influence nurse and patient outcomes. Needleman, et al., (2011) found that turnover of patients (admissions and discharges) increases patient mortality even when target-staffing levels were met. They suggest "that both target and actual staffing should be adjusted to account for the effect of turnover…in light of the potential importance of turnover on patient outcomes" (Needleman, et al., 2011, p.1044). This literature brings to light not only to the potential importance of charge nurses considering patient turnover when making nurse-patient assignments but the uncertainty of which factors are relevant and how charge nurses consider them.

These examples provide insight into the overall process, complexity and controversy of patient care allocation. Clinical settings employ diverse tools and

approaches that define the process through which charge nurses approach the allocation of workload. The process of identifying and detailing how processes such as nurse-to-patient ratio systems, patient classification systems, "pod" systems or other approaches are considered by charge nurses is essential to understanding their decision-making.

The following overview will provide the final element to the background. It consists of a discussion of the literature illustrating, in more detail, the relevance of factors within the categories of the nurse, the patient and the physical environment to the nurse-patient assignment. It also highlights the importance of processes of workload allocation aligning with factors relevant to the workload allocation as a means of optimizing the nurse-patient match.

Factors that Influence Patient Care Allocation.

The inpatient clinical environment is highly complex. Numerous factors impact nurse and patient outcomes. The three primary categories of interest for this study include: the patients, the nurses and the physical environment. These were chosen based on literature identifying these three as central to patient care allocation as it related to the development of the nurse-patient assignment (Allen, 2012; Fitzpatrick, & Wallace, 2006; Unruh, & Fottler, 2006). Research does, however, identify other factors relevant to the process of patient care allocation, which is important to acknowledge and address when investigating patient care allocation decision-making among charge nurses.

The primary focus of this investigation was not the factors that affect workload and their relevance to the development of the nurse-patient assignment but rather what factors charge nurses consider and how they prioritize them. Thus, the goal is not to provide an exhaustive list and analysis of all factors but rather to provide a background

and framework through which to understand patient care allocation decision-making. This background served to inform lines of qualitative inquiry into how charge nurses attempt to optimize the nurse-patient assignment. To provide perspective into the diversity and nuanced influence of factors related to patient care allocation decision-making a discussion of research related to patients, nurses and the physical environment follows.

The Patients.

Nurses are responsible for managing diverse patients with complex and dynamic health statuses. Some clinical settings employ strategies to assess factors influencing patient care workload such as nursing intensity or patient intensity (Clarke, 2006; Phillips, Castorr, Prescott, & Soeken, 1992). One of these strategies includes the implementation of tools identified as patient classification systems (PCS). A PCS describes a broad range of metrics used to capture the amount of work or workload of a given patient or set of patients based on representative characteristics. This information can then be used to inform patient care allocation and nurse-patient assignments.

Seago (2002) classifies PCS into the critical incident or criterion type of system or the summative task type. The *critical incident or criterion* type PCS attempts to categorize patients using broad indicators reflective of the care they require. With the summative task type PCS, the nurse identifies the activities, treatments and procedures that they provide to their patients and their frequency. For example, they would track activities such as wound care, medication delivery, and other aspects of patient care.

The focus of PCS as workload management strategies has generated an extensive body of literature characterizing, enumerating and measuring factors that influence

nursing work such as nursing tasks associated with patient care, patient acuity and time associated with patient care (Canabarro, Velozo & Eidt, 2010; Guccione, Morena, Pezzi et al. 2004; Jakob & Rothen, 1997; Miranda, Moreno & Iapichino, 1997). A few examples of these types of systems include the Therapeutic Intervention Scoring System (TISS), the Time Oriented Score System (TOSS), and the Nine Equivalents of Nursing Manpower (NEMS).

Overall, these tools represent methods employed to quantify work or workload as a means of informing the nurse-patient assignment. Strategies such as these focus on elucidating workload dynamics associated with the first variable, the patients. The inclusion of these examples of tools used to understand work and workload of patients is specifically relevant to this investigation because it is unclear if, how and to what extent charge nurses consider such variables related to patients when allocating patient care in the presence or absence of such tools.

The Nurses.

The nursing workforce reflects variation in many characteristics. Some of the variation of characteristics can affect outcomes and thus have relevance to patient care allocation. Variation in nurse characteristics may include nurses' educational level, language skills, cultural background, certification status, residency training experience, years of practice, interpersonal attributes and differing ways of managing stress and stressors. Many of these can affect the nurse's experience of work, the work climate and patient and nurse outcomes. Literature highlights both theoretical and statistical findings that support the investigation of how variation in nurse characteristics is relevant to patient care allocation as it pertains to the nurse-patient assignment. The importance of

understanding the effects of variation in nurse characteristics on patient care dynamics will be illustrated first through a theoretical model and will be followed by other studies demonstrating the influence of nurse characteristics in clinical environments.

A Theoretical Perspective.

One characteristic that varies among nurses and influences their experience of patient care is their skill level. Charge nurses that understand skill variation among staff nurses may consider this when allocating patient care. The Dreyfus model serves as a foundational theoretical framework facilitating the understanding of skill acquisition of individuals in various settings (Dreyfus, & Dreyfus, 1980). Researchers have implemented the Dreyfus model in nursing environments to provide research to support the value of the theory in these settings (Benner, 1982; Benner, 1984; Carraccio, Benson, Nixon, & Derstine, 2008). Patricia Benner, for example, proposed that nurses fall into different categories of skill performance, which can be conceptualized as: novice, advanced beginner, competent, proficient and expert (Benner, 1982; Benner, 1984). Benner (2004), through a series of studies, began to map skill acquisition of nurses and identify how these affected their practice. Benner (2004) traces the trajectory of the growth of nurses over the course of years of practice and highlights ways in which their practice is affected by the experience they accumulate. A charge nurse might reasonably want to understand the specific skill sets and, perhaps more broadly, skill levels of staff nurses when attempting to make the nurse-patient assignment to inform the best match of patients' needs with nurses' competencies.

Benner's studies, however, only broach a few of the broader contexts in which variation in nurse characteristics, with respect to experience and skill acquisition, affects

practice. The consideration of variation in skill level when allocating patient care may be a significant factor in optimizing the nurse patient match when developing the nurse-patient assignment. Although both informative and relevant to patient care allocation, these studies did not explore if and how the variable of nurse skill acquisition is considered by charge nurses when making nurse-patient assignments. An understanding of the relevance of factors such as these is important to consider when investigating charge nurse decision-making, as they may influence outcomes and may contribute to the development of best practice.

Nurse Education.

Nurse education is another factor that influences outcomes and thus may be an important element of charge nurses' decision-making when allocating patient care. Aiken, et al. (2003) found in a cross sectional analysis of outcomes data that hospitals staffed with greater proportions of baccalaureate or higher educationally prepared nurses had lower rates of mortality and failure to rescue. Estabrooks, Midodzi, Cummings, Ricker, and Giovannetti (2005), through a cross sectional analysis of outcomes data, corroborated this when they reported that 30-day mortality was associated with an odds ratio of 0.81 at hospitals with higher nurse education levels. Likewise, many nurses pursue advanced national certifications to broaden their education. In a quantitative study focused on the role of nurse specialty certification and patient outcomes, Kendall-Gallagher, Aiken, Sloane, and Cimiotti (2011) found that specialty certifications attained by nurses are associated with improved patient outcomes. Additionally, in a randomized controlled trial with 114 healthcare workers and 133 patients it was found that training programs on cultural sensitivity "improve knowledge and attitudes among health care

providers" and yield "positive health outcomes for patients" not only reiterating the value of continuing education for nurses but the tracking and leveraging of this information to align nursing resources to optimize outcomes (Majumdar, Browne, Roberts, & Carpio 2004, p. 161). Similarly, Blegen, Vaughn, and Goode (2001) highlight, through a cross-sectional study of 21 hospitals, the association between nurse education and patient outcomes and found that "units with more experienced nurses had lower medication errors and lower patient fall rates" (p. 33).

These studies provide examples of the potential significance of nurse education in clinical environments and how considering this variable may serve to inform the decision-making process of charge nurses when making nurse-patient assignments. Qualitative inquiry of charge nurse decision-making may serve to elucidate whether and how charge nurses consider factors such as nurse education.

Psychological Factors.

Nurses also vary in their emotional and psychological experience of work. Nurses respond and cope in a variety of ways to the everyday stressors and distress within the workplace. Research into these topics reveals that variation exists in nurse stressors, stress management, causes of moral distress, emotional intelligence, resilience, hardiness and workplace preferences (Dyer, & McGuinness, 1996; Edward, & Hercelinskyj, 2007; Jackson, Firtko, & Edenborough, 2007; Judkins, & Rind, 2005; McVicar, 2003). McVicar (2003), for example, in a review of the literature, identifies the significance and diversity of stress in nursing environments and the need to develop "tools to evaluate the intensity of individual distress" (p. 633).

Guadine (1999) identifies through qualitative inquiry of nurses that "researchers and nurse administrators do not include all of the dimensions that nurses think of when they use the word workload" and "nurse administrators who listen to nurses' experience of workload may be able to find strategies to help nurses deal with their workload" (p. 22). This program of research identifies variation in the experience of workload, which directly influences nurse outcomes. For example, Clews and Ford (2008) report that National Health Service "staff are almost four times as likely to be absent from work with stress as people with other occupations, and nurses are the most stressed of all" when compared with "a range of other occupations -in both the public and private sector - including education, manufacturing, retail and local government".

The pursuit of research that investigates whether charge nurses are cognizant of these dynamics and sensitive to them when making nurse-patient assignments may serve to inform best practice strategies and potentially improve nurse outcomes by mitigating rates of burnout or nurses calling out sick because of stress.

Interpersonal Dynamics.

The delivery of the highest quality of nursing care in inpatient clinical environments relies on effective inter and intra professional collaboration and teamwork (Kalisch, & Lee, 2011; West, Sculli, & Fore, 2012). Evidence provided from various studies illustrates the influence of interpersonal dynamics on outcomes. The consideration of interpersonal relationships thus is another factor charge nurses may consider to optimize the nurse-patient assignment.

Adams and Bond (2000), for example, found, by surveying 834 nurses across 17 hospitals, that nurses identified the importance of interpersonal relationships for their job

satisfaction. They went on to elaborate by discussing the importance of the cohesiveness of a ward nursing staff. Another study by Leppa (1996) of 908 nurses across 4 hospitals reiterates the importance of understanding the nuances of interpersonal relationships because they are an important factor affecting job satisfaction.

Likewise, Manojlovich (2005) identifies that "the implication for nursing is that more attention to the practice environment is needed. Identifying relevant factors in the environment might be a potential long-term strategy to improve nurses' job satisfaction" (p. 371). For example, Baernholdt and Mark (2009) found associations between both nursing unit characteristics and work environment with job satisfaction and rates of turnover in urban and rural hospitals. Negative work environments are also found to be associated with a higher prevalence of depressive symptoms (Burgard, Elliott, Zivin, & House, 2013).

The literature referenced here does not, nor is meant to, comprehensively speak to the myriad aspects of nurse characteristics that influence health system outcomes. It does, however, provide insight into nursing characteristics relevant to patient care allocation. More specifically, to the aims of this study, it raises questions about whether charge nurses are considering factors such as these when allocating patient care and, if they are, whether and how they should be.

The Physical Environment.

The physical environment of inpatient clinical environments can impact nurse and patient outcomes. The relationships between the physical environment and outcomes can be complex. Careful consideration of these factors can significantly increase the complexity of patient care allocation. It is unclear if charge nurses consider these

environmental factors and, if they do, to what degree. Various studies outline some of the ways in which the physical environment can influence outcomes.

Unruh and Fottler (2006), in their review of the literature, identify a few of these "physical resources, such as unit layout" and "the work design and technology, such as the level of computerization and model of nursing care" (p. 600). The discussion of factors such as these address the significance of spatial dynamics and physical resources of inpatient settings and how these affect the process of work and outcomes.

As previously outlined, one of the responsibilities of the charge nurse is to place patients into groups and then allocate a nurse to each of these groups of patients. Without considering any nurse or patient variables, the complexity of making these groupings can be a numeric challenge with respect to the possibilities alone. For example, in a unit with 20 patients and 5 nurses there exists 4,845 ways to organize 20 patients into groups of 4. Likewise, there exist 581,400 ways to allocate 5 nurses to these possible groups. For a unit with these characteristics, a patient census of 20 and 5 staffed nurses, the charge nurse is faced with arranging patients and assigning nurses to them in any of these 581,400 possibilities every shift.

The numeric complexity is important to understand considering the research related to spatial relationships, workflow and outcomes in inpatient settings. For example, literature highlights the value of environmental design as a key component to facilitating efficient and safe care (Carayon, Alvarado, & Hundt, 2007; Pati, Harvey, & Cason, 2008; Reiling, Breckbill, Murphy, McCullough, & Chernos, 2003). Strategies include: striking a "balance between patient accessibility and reduction of disruptions, automation, [minimizing] staff fatigue, and promoting a culture of safety" (Chaudhury, Mahmood,

and Valente, 2009, p. 755). Likewise, time motion studies have illustrated the importance of analyzing how nurses spend their time, revealing ways to maximize the efficiency of nurses' time. Additionally, Storfjell, Ohlson, Omoike, Fitzpatrick and Wetasin (2009) used focus groups and nurse interviews to determine how much of nurses' time was non-value added time because poorly utilized time contributed to high costs and nurse dissatisfaction. Storfjell et al. (2009) also reported that "non-value-added charge nurse time spent in obtaining the appropriate number and type of staff and making staff assignments costs an average of [$63,700 annually per medical surgical unit]" (p. 44). Additionally, Sundaramoorthi, Chen, Rosenberger, Kim, and Buckley-Behan (2009) highlight the importance of considering "hospital and care unit specific factors" to balance workload among nurses and thus developed a "data-integrated simulation to evaluate nurse–patient assignments" (p. 253). The strategy outlined here employs statistical modeling which integrated seven types of variables that they believed were significant factors affecting workload. The first was location, which included: "patient rooms, nurse station, break room, reception desk, and medical room" (Sundaramoorthi et al. 2009, p. 255).

The outlined literature identifies the importance of considering the division of work (i.e. the grouping of patients) because of the significant impact it can have on efficiency and cost of care. These only represent a few of the studies which illustrate the numerous ways that the construction, operation, design and logistics of nursing work environments affect outcomes (Aiken, Clarke, & Sloane, 2002; Mäkinen, Kivimäki, Elovainio, & Virtanen, 2003; Mäkinen, Kivimäki, Elovainio, Virtanen, & Bond, 2003).

Summary of Patient Care Allocation Factors.

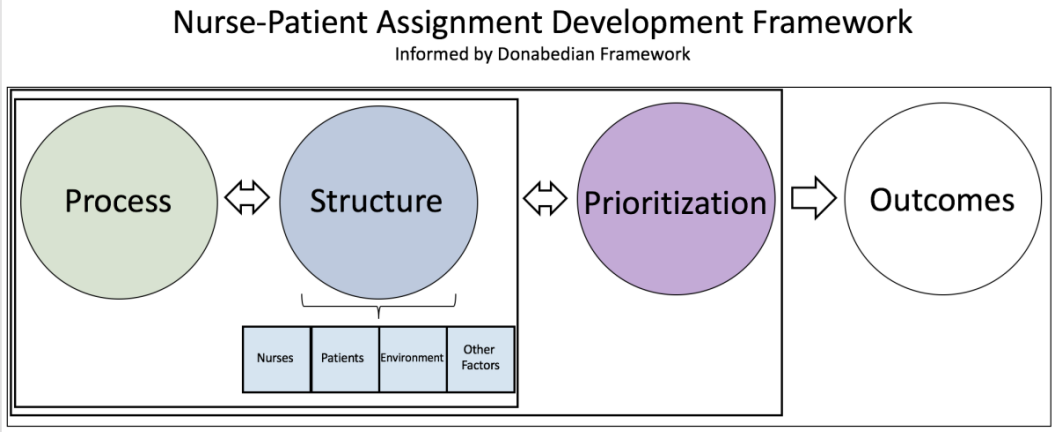
The background provides an overview of the process of patient care allocation and the influence of various factors, within the categories of the patient, the nurse and the environment. Their discussion serves to frame the focus of this study, which investigated how charge nurses approach and consider these dynamics and factors related to patient care allocation. Little evidence exists outlining what factors nurses consider when allocating nurse patient care within hospital units and how they consider them. Similar gaps in the literature exist with respect to what educational information is provided to charge nurses, to what degree they are familiar with patient care allocation literature, and, if they integrate this literature or other factors into their allocation of patient care. It is also unclear what information, support, or tools nurses who allocate workload might want to better enable them to complete the process. This background serves as a foundation from which the literature review and aims of the study can be understood.

Conceptual Framework

The conceptual framework for this investigation utilized a revised version of Donabedian's framework. Donabedian's framework includes the elements of Process, Structure, and Outcomes, used to assess the quality of healthcare delivery (Donabedian, 2002; Mitchell, Ferketich, & Jennings, 1998). In the Donabedian framework, the term Process refers to activities or actions of patients and practitioners (Donabedian, 1988; Donabedian, 2002). The term Structure refers to the material and human resources and organizational characteristics of a health system (Donabedian, 1988; Donabedian, 2002). Finally, outcomes refers to impact of care delivered on patients (Donabedian, 1988; Donabedian, 2002). The conceptual framework for this investigation also incorporated the element of Prioritization to reflect the aim of exploring charge nurse decision-making.

This resulted in the conceptual framework for this investigation including the four elements of Process, Structure, Prioritization and Outcomes. (Figure 1) Each of these will be outlined in relation to nurse-patient assignment development and this investigation.

Figure 1.



With respect to the nurse-patient assignment, process reflects the existence of various types of approaches and frameworks that guide patient care allocation in medical-surgical units. For example, some clinical settings employ explicit or implicit nurse-to-patient ratio systems as part of their allocation process. Other clinical settings employ "pod" systems or supplement either or both systems with patient classification systems as part of their process of patient care allocation. The use or absence of a system such as these or others is informative with respect to how charge nurses make decisions when allocating patient care to develop the nurse-patient assignment.

The incorporation of structure serves to reflect the existence of research that demonstrates charge nurses' consideration of infrastructural elements of clinical settings when developing the nurse-patient assignment. More specifically, charge nurses in clinical settings collect information on various types of factors and leverage the information to inform the development of the nurse-patient assignment.

Finally, the conceptual framework for this investigation included outcomes. Although this investigation does not involve the assessment of outcomes, the element of outcomes is included to reflect research that identifies relationships between elements of structure and process related to the nurse-patient assignment that have potential to impact outcomes.

The element of prioritization was included in the conceptual framework because the process and factors that drive the development of the nurse-patient assignment are influenced by how the charge nurse considers them. The nurse-patient assignment is driven by how charge nurses prioritize factors.

In addition, the conceptual framework specifically identifies nurses, patients, and the physical environment as elements of structure because of research identifying that charge nurses consider these elements (Allen 2012; Fitzpatrick & Wallace 2006; Unruh & Fottler 2006). It is also known that other factors affect patient care and thus are relevant to the development of the nurse-patient assignment, which is why the category "other" is also included.

These serve to reflect the core elements with of charge nurses' nurse-patient assignment development. The conceptual framework aligns with the aims of the study, which are to elucidate charge nurse perspectives on the process of patient care allocation, the factors they consider and how they consider these factors when developing the nurse-patient assignment. The central focus revolves around addressing gaps in the literature, which demonstrate limited inquiry into the process and decision-making of charge nurses' allocation of patient-care in adult inpatient medical surgical units (Allen, 2012;

Needleman, et al., 2011; Punnakitikashem, Rosenberger, & Behan, 2008; Sundaramoorthi et al. 2009; Sundaramoorthi et al. 2009).

The framework also represents bi-directional relationships between Process, Structure and Prioritization identifying the nature of the development of the nurse-patient assignment. Overall, the conceptual framework serves to illustrate the focus on charge nurses as a means of exploring what and how charge nurses develop the nurse-patient assignment.

Significance

Several aspects of the study contribute to its significance. First, the principle goal of the study was to describe charge nurses' perceptions with respect to the allocation of patient care in adult inpatient medical-surgical units. The interviews focused on soliciting descriptions of how charge nurses make nurse-patient care allocation decisions within their specific units. This is significant because it addresses gaps in the literature by investigating the perspectives of charge nurses responsible for patient care allocation and the factors that influence their decision-making through semi-structured interviews. The insight provided by this study may be leveraged to improve outcomes by contextualizing and detailing the process of patient care decision-making and providing insight into currently opaque dynamics and unanswered questions at the bedside.

Second, there are no known best practice methods to guide the allocation of patient care. Little is known about how and what charge nurses think about the process of patient care allocation. The pursuit of research that uncovers how decisions are made has potential to contribute to best practice with respect to the development of nurse-patient assignments informing or adapting current practices within hospital systems.

Third, nursing care is a scarce resource with shortages reported globally and poor work climates and high levels of workload can contribute to this scarcity (Buchan & Aiken, 2008; Oulton, 2006). For example, several studies report that poor workload allocation can contribute to increased workload leading to burnout of nurses (Laschinger, & Leiter, 2006; Vahey, Aiken, Sloane, Clarke, & Vargas, 2004). Likewise, burnout imposes an added fiscal burden on health systems because of the cost of training new staff nurses (Jones, 2005; Waldman, Kelly, Aurora, & Smith, 2004). These circumstances illustrate the value of optimally utilizing staff nurses in health systems and the significance of research to improve the organization of the delivery of patient care.

Finally, the data provides insight into where future research can be directed on the process of patient care allocation. The identification of the inclusion or absence of evidenced based data informing charge nurse decision-making serves to identify if there are any potentially knowledge gaps or opportunities to further inform patient care allocation. Among other potential implications, the findings may offer a foundation for further research to explore and develop a theoretical perspective to characterize the process of workload allocation, which can serve as a tool to allocate workload more effectively. The results of the study may also serve to guide educational initiatives for charge nurses guiding their allocation of patient care in ways that may save time, money and improve outcomes.

Innovation

This research study is innovative for two reasons. First, it prioritizes the investigation of the process of workload allocation. A focus on the process represents a departure from traditional approaches, which have focused on measuring outcomes

influenced by workplace dynamics. For example, previous studies have sought to characterize, enumerate and measure factors influencing nursing work such as tasks, acuity and time (Canabarro, Velozo & Eidt, 2010; Guccione, Morena, Pezzi et al. 2004; Seago 2002). Other methods have sought to compare the effect of nurse-to-patient ratios (Aiken et al. 2002). Although these are valuable contributions to the literature and have served to improve outcomes, they are not contextualized within the process of patient care allocation decision-making. Limited research has sought to understand what factors charge nurses consider when allocating nurse-patient care. The approach of this study facilitates inquiry into these and other factors and how they relate to the process of workload allocation. Second, the study aims to investigate the process of workload allocation and relevant factors through the lens of working charge nurses. Limited research has addressed the reflections of charge nurses to uncover their unique experiences of workload allocation and their decision-making that guides the process, which contributes to the innovative nature of this study.

List of Definitions

Charge Nurse-one of several terms used to describe a staff nurse working in an inpatient clinical setting with unique responsibilities that often include patient care allocation. The term ‘charge nurse’, however, is often replaced with synonymous titles such as: unit supervisor, shift coordinator, ward nurse or ward manager (Berbarie, 2010; Doherty, 2003).

Chapter II

Review of the Literature

The purpose of this chapter is to discuss the research related to nursing patient care allocation with specific emphasis on charge nurse perspectives. The review of the literature will outline what inroads have been made to elucidate the dynamics relevant to nurses responsible for the allocation of patient care and what gaps still exist.

Background

Nurses bear responsibility for managing the complex workload of patient care within hospital settings. This consists of coordinating care for and delivering care to patients with dynamic and unpredictable health statuses. Additionally, nurses are responsible for numerous extraneous factors relevant to the delivery of patient care (e.g. documentation, assisting colleagues, administrative duties, inter-professional collaboration, etc.). The number and nature of these factors and the ever-changing patient-care and unit dynamics contributes to the challenge of allocating patient care in an ideal manner.

In adult inpatient medical surgical settings the charge nurse traditionally assumes responsibility for "coordinating the delivery of patient care" (Sherman, & Eggenberger, 2009). The literature identifies the importance of preparation and support for nurses in roles such as the charge nurse (McCallin, & Frankson, 2010). Hurst, Ford, Keen, et al. (2002) highlights that "never before has it been so vital that nurses are armed with appropriate instruments and data to help them plan and implement efficient and effective nursing teams" (p. 5). Stichler (2008) states that "the importance of formal development and education … cannot be overemphasized, as managers are the point of service

interface between upper level management and staff" (p. 526). Insight into the roles of individuals in these positions is relevant to charge nurses who often assume various levels of managerial responsibilities while coordinating daily clinical activities with nurses and patients.

To support and empower charge nurses, it is critical to understand their needs and the factors that influence their ability to provide patient care. Although a body of evidence exists providing insight into many of the factors that affect workload and thus have implications for patient care allocation, limited research addresses the perspectives of charge nurses in adult inpatient medical surgical environments. The review of the literature will outline what progress has been made to clarify dynamics relevant to charge nurses' allocation of patient care and where more research is needed.

Nursing and Patient Care Allocation

Interest in the overall process of patient care allocation and the thought processes of charge nurses is not new to the literature. A commentary by Peterson (1973) provides an overview of the process and data that charge nurses consider and incorporate respectively when making nurse-patient assignments. The article provides a descriptive commentary on work environment factors included in the process of allocating patient care by the charge nurse. They include the active collection of information including assignment sheets, nursing care plans and nurses' notes. The author also highlights the importance of making active rounds around the unit throughout the shift at least two times. These active rounds include the assessment of the degree to which nurses are following their care plans, physical aspects of their patients and patients' rooms, their patients' emotional state, whether their teaching needs are being met and whether the

patients are being appropriately prepared for discharge. This descriptive paper offers valuable insight into some of the processes engaged in by charge nurses and the factors they assess in their role. Although the study provides rich descriptive detail it does not delve into the thought processes and decision-making of charge nurses as they develop the nurse patient assignment. Targeted inquiry into reflections on processes and decision-making will serve to fill gaps in the literature and may serve to develop best practices with respect to patient care allocation.

McOwen, Cooper, and Clayworth (2005) used a questionnaire to investigate whether ward sisters and charge nurses could fulfill their role. The study employed a 34-item questionnaire that "was designed to identify sisters'/charge nurses' views about carrying out their duties" (p. 38). Their results revealed that sisters/charge nurses were responsible for direct patient care in addition to their managerial responsibilities on about half of their shifts and that most them did not have ample time to complete their managerial duties which included clinical supervision and support (McOwen, Cooper, & Clayworth, 2005). McOwen, Cooper, and Clayworth (2005) specifically asked whether they felt they had "sufficient time to teach and assess, and develop junior staff" and 69% disagreed (p. 39). Likewise, when asked whether they had "sufficient time to complete all of [their] managerial duties each shift" 82% disagreed (p. 39).

Their study offers perspective into the role of charge nurses regarding their various responsibilities and how they believe they often do not have enough time to fulfill their duties. This study serves as an exemplar of how prioritizing charge nurse perspectives can serve to elucidate dynamics and challenges of their role. More importantly, the study identifies time constraints as a limiting factor relevant to the

allocation of patient care. The study does not, however, specifically investigate the decision making of charge nurses with respect to patient care allocation. The study also uses a questionnaire, which does not serve to provide detailed descriptions of the factors and dynamics that limit charge nurse time in clinical settings to complete all of their responsibilities.

Several more recently published studies, however, have demonstrated an interest in exploring the perspectives of nurses responsible for the allocation of patient care through qualitative research. Allen (2012) interviewed 14 charge nurses on 11 different specialty units (episodic care, acute care/short stay and long stay) about patient assignment issues. Allen (2012) reported that charge nurses aim for "best care" when making patient assignments. Charge nurses also identified the importance of striving to treat nurses equitably while ensuring that all work was completed. Allen (2012) also found that charge nurses most frequently considered nurse demographics, acuity, proximity, competence, workload, nurse-patient ratio, collegiality and staffing when making patient care assignments. This study serves as an example of inquiry into charge nurse decision-making that offers insight into the types of factors that charge nurses consider when making the nurse-patient assignment. Research building on these lines of inquiry may serve to provide more detail with respect to how charge nurses prioritize the factors identified in this study.

Similarly, Eggenberger (2011) qualitatively investigated 20 charge nurses' perceptions of their responsibilities within acute care settings. The study specifically honed in on charge nurses' perspectives of their experience of the role and how they manage providing support for patient and nurses. Eight themes were identified related to

the experience of being a charge nurse: "Creating a Safety Net, Monitoring for Quality, Showing the Way, Completing the Puzzle, Managing the Flow, Making a Difference, Putting Out Fires, and Keeping Patients Happy" (Eggenberger, 2011, p. 56). The study provides insight into the role of charge nurses, the diverse responsibilities and how they facilitate the safe delivery of care. The study did not specifically focus, however, on the decision-making process of charge nurses related to the allocation of patient care.

Miner-Williams, Connelly, and Yoder (2000) provide an example of a study that reflects qualitative inquiry into the role of charge nurses. Their qualitative study consists of interviews of 12 charge nurses, 10 head nurses, 9 nurse managers, and 11 staff nurses. The focus revolves around investigating "what nurses believe charge nurses need to perform their job well" (p. 32). In their paper, they mention the challenge of distributing workload evenly. They also outline the importance for charge nurses to synthesize information about all the patients on the unit to be prepared to respond to staffing challenges. Their paper also highlights the value of knowing the strengths and weaknesses of their nurse colleagues. In their report they also discuss the necessity of critical thinking skills. The paper also highlights the importance of resourcefulness and the charge nurses' role in fostering teamwork.

While this study provides an example of qualitative inquiry of charge nurses, there is a lack of specificity with respect to the experimental design, description of results and identification of factors and decision-making specific to patient care allocation in adult inpatient medical-surgical settings. This study serves as a framework from which to direct inquiry of charge nurses and their role, processes related to workload allocation and how they prioritize factors related to workload allocation. Further inquiry exploring

charge nurses' perspectives on the totality of factors that are relevant to making allocation decisions will serve to complement this literature and build on a foundation contributing to best practice.

Curley (2012) also interviewed charge nurses across three intensive care units to better understand the relevance of the synergy model, which is a conceptual framework for a nursing productivity system that aims to align patient characteristics with nurse competencies to optimize outcomes. Interviews with 30 charge nurses across three different intensive care units identified that all the eight patient dimensions of the synergy model were relevant to the development of nurse-patient assignments. The dimension included attention to vital signs, severity of patient diagnosis, the course of illness, absence of reserve, invasiveness of care, level of family education, the style of participation and the environment at home. These dimensions correspond with: stability, complexity, predictability, resiliency, vulnerability, family participation in decision making/care, and resources.

The described study provides insight into factors that charge nurses consider when making patient care assignments in intensive care units. It demonstrates how many of the factors considered align with aspects of the synergy model. These findings serve to illustrate the potential value of integrating the synergy model into intensive care units as a tool to facilitate the development of patient care assignments. The study also serves to provide perspective into important areas of inquiry for charge nurses in medical surgical units and how they consider them as they make nurse-patient assignments. The study, however, focuses on intensive care units, which differ in various respects to medical surgical units with respect to the allocation of patient care workload. Likewise, the study

did not specifically inquire about the decision-making process and prioritization of specific factors as charge nurse develop the nurse-patient assignment. Despite the differences in setting and focus it provides a foundation from which further inquiry can build working towards the development of best practice for patient care allocation in adult inpatient clinical settings.

Frankson (2009) also conducted a qualitative study with charge nurses in a public health organizational setting. Twelve charge nurses were interviewed and results revealed three themes suggesting "that because the guidelines to the role were unclear, role complexity resulted, because of the lack of business management skills, role limitation occurred and because a level of expectation was at times high, sometimes unrealistic, role overload resulted" (p. iv). Although the study did not directly examine inpatient environments, the themes provide transferable insight to inpatient clinical settings about the importance of defining a clear role for charge nurses, providing adequate business management development, and managing expectations of the charge nurse appropriately. Likewise, the qualitative exploratory descriptive design of the study serves as a model for how to effectively investigate charge nurse perspectives of their role and experiences.

In another descriptive exploratory study, McCallin and Frankson (2010) also investigated the role of the charge nurse manager in New Zealand. Their study involves face-to-face structured interviews of twelve charge nurses. The study reveals three themes: "role ambiguity, business management deficit and role overload" which the researchers concluded were a result of a lack of managerial skills (p. 319). The findings illustrate the importance of investing in the support and preparation of charge nurses. Similarly, it identifies the value of further exploration of nurse perspectives related to the

process of workload allocation and their decision-making. This may serve to develop educational resources to address some of the role ambiguity, ideally improving their ability to function in their role and develop nurse-patient assignments. Further research may help to address gaps that still exist with respect to what factors charge nurses consider and how they consider them in adult medical surgical units when allocating patient care.

Lewis (1990) uses semi-structured interviews to explore ten charge nurses' perceptions of their responsibilities. The sample of nurses was drawn from two large hospitals in the south of England. The data was analyzed using grounded theory and it was determined that the charge nurses act as gatekeepers by attempting to define, structure and uphold nursing standards in the practice environment. More specific aspects of their role were discussed such as the importance of setting standards for care such as shaping the culture of a unit, role modeling to demonstrate appropriate behavior and care, monitoring the development of staff and providing support to nurses as they care for patients.

The allocation of nurse-patient care, however, was not a specified focus of the qualitative inquiry of this study. The charge nurses interviewed did discuss the active role that they take in maintaining the fluid operation of a unit and facilitating the delivery of care but they did not focus on charge nurses' role in workload allocation. They also did not focus on the decision-making process related to workload allocation. The study, nevertheless, provides insight into the perspectives of charge nurses' roles and a few of their priorities. These serve to inform the elements of practice environments that charge nurses believe are within their purview. Specific attention was paid to elements relevant

to the process of patient care allocation including the development of nurses and needs of patients.

Lundergren-Laine, Kalafati, Kontio, Kauko, and Salantera (2013) employed an online survey to describe the information needs of ICU charge nurses. The study design resulted in the inclusion of 257 Finnish and 50 Greek ICU charge nurses. Samples were drawn from 17 Finnish and 16 Greece ICUs. Some statistically significant differences were found between the charge nurses in the two countries, however, more relevant were the findings related to the reported needs of the ICU charge nurses. The primary information needs were found to revolve around the organization and management of work. These needs were expressed as required to help inform their decision-making related to the management of care. The study provides relevant insight into the expressed needs of charge nurses for accurate and timely information about both nurses and patients to fulfill their role of managing the delivery of care in ICUs. These findings serve to elucidate the needs that charge nurses have for information to fulfill their role, which includes the development of the nurse-patient assignment. Gaps in the literature still exist, however, with respect to what types of information charge nurses would like about nurses, patients, the physical environment and other potential factors with respect to the allocation of workload. Similarly, the study uses a questionnaire as opposed to interviews and focused on ICUs. Both the method and setting interject limitations with respect to the degree to which they provide an understanding of the nuanced decision-making of charge nurses in adult inpatient medical surgical units making nurse patient assignments.

Summary

The review of the literature illustrates a breadth of inquiry probing the perspectives of nurses responsible for the allocation of patient care and factors relevant to this process. Overall, ten published pieces were identified that investigated aspects related to the role that charge nurses play in healthcare environments. None of these studies, however, use a qualitative approach to investigate medical-surgical nurses' perspectives of nursing patient care allocation with specific attention to their decision-making process. A qualitative approach can serve to provide rich descriptions of what information needs charge nurses have, what information they consider and how they consider that information within the process of making the nurse-patient assignment.

For example, Peterson, (1973) did not explicitly employ research driven methods to support their commentary on the role of the charge nurse. Although the commentary provides insight into the role, challenges and needs of charge nurses, the approach limits its generalizability and use as a foundation for informing best practice. Miner-Williams, Connelly, and Yoder (2000) offer a description of charge nurses needs which identify some of their informational needs that relate to the nurse-patient assignment. McOwen, Cooper, & Clayworth, (2005) use questionnaires to investigate aspects of the role of charge nurses. Two other studies, Curley (2012) and Lundergren-Laine, Kalafati, Kontio, Kauko, and Salantera (2013) focus on ICUs, which present environmental differences affecting the role of the charge nurse with respect to workload allocation. One study, Eggenberger (2011), did investigate 20 charge nurses in acute care facilities; however, the focus was largely on the experience of being a charge nurse rather than specifically focusing on the decision-making process of patient-workload allocation. One of the remaining four studies, Frankson (2009), investigated the role of charge nurses in public

health organizations. McCallin, & Frankson, (2010) use semi-structured interviews of charge nurses, however, they probed broadly into charge nurse perspectives about the role and their responsibilities. Lewis (1990) also used semi-structured interviews of ten "ward sisters/charge nurses", however, the focus was on the perceptions of their responsibilities.

The final study, conducted by Allen (2012), serves as an example of qualitative inquiry into the role of charge nurses with specific attention to the process of the development of the nurse-patient assignment. One of the few limitations relates to the lack of generalizability for adult-inpatient medical surgical units. Although it is not made explicitly clear how many interviews were conducted on "long stay" units, which are most analogous to "medical-surgical" environments, it appears that the most that could have been conducted were 6 and it may be as few as 3. One of the few other departures from the focus of this study is that Allen (2012) did not incorporate into the aims an investigation of the prioritization of factors and the nature of the decision-making process in terms of weighing factors to inform patient care allocation.

The literature identifies gaps where more detailed information about patient care allocation can potentially be leveraged to improve outcomes. One of these principle gaps includes a lack of investigations into decision-making in adult inpatient medical surgical units as it related to the development of the nurse-patient assignment. Several of these studies were focused on intensive care units. The focus on ICUs is important because the literature indicates differences in the process through which patient care is allocated and the factors that are considered given the characteristics of the unit (Allen, 2012). For example, Allen (2012) identifies that in episodic care units (ED, OR, PACU) nurse-

patient relationship are not considered by charge nurses when making patient assignments. In contrast, charge nurses that work on long stay units (MED, ONC, SURG) did consider nurse-patient relationships. The reported variation in differences related to factors that charge nurses consider serves as one example of important difference between units. The variation in nurse-patient ratios also affects the decision-making process.

Likewise, the studies that have investigated the factors that are considered do not focus on the process of prioritization of factors or the relevance of charge nurse training or education on the development of their decision-making framework. The lack of detail in the literature on these topics is of specific importance given to the value of providing education to charge nurse (Duygulu, & Kublay, 2011; Foster, 2000; Reed, 2008; Sherman, 2004). Additionally, several of these studies provide reflections that were collected through questionnaires or surveys, which provide a different quality of data required to provide rich descriptions and details of processes and decision-making. A paucity of research employs qualitative interviews focused on investigating charge nurse perspectives of patient care allocation, with specific attention to prioritization, in adult inpatient medical surgical units.

Ultimately, the review of the literature identifies the value of exploring the perceptions of nurses responsible for the allocation of patient care in adult inpatient medical surgical units. It also identifies a foundation of research investigating aspects of the role of charge nurses that are relevant to understanding the decision-making of charge nurses and building best practice with respect to the nurse-patient assignment. Birmingham (2010) reiterates this sentiment by identifying that gaps exist “between what

science tells us about the impact of staffing on outcomes and the evidence to inform day-to-day and even hour-to-hour operations for nursing executives" (p. 24).

Chapter III

Methodology

The purpose of this study was to describe charge nurses' perspectives on the development of the nurse-patient assignment and the factors that influence nurse-patient assignment allocation decisions. This chapter will discuss the qualitative research design, setting, sample and sampling procedures, methodological procedures and data analysis, and human subjects protection.

Research Design

The aims of this investigation and the review of the literature drove the selection of a qualitative descriptive approach and content analysis as the most appropriate methodology. This investigation sought to understand process and factors as they related to the development of the nurse-patient assignment in addition to decision-making. Although there is published literature providing insight into elements of each of the aims of this investigation, there is limited research on the process of the development of the nurse-patient assignment, which the first aim of the investigation focused on elucidating. Allen (2012) describes that "no source actually described the nurse-patient assignment process" and that there is "considerable uncertainty about the steps of the nurse-patient assignment process." Not only was it valuable to pursue research that described this process it was also an important step facilitating the exploration of decision-making of charge nurses. This, in part, drove the decision to select a qualitative descriptive approach using content analysis.

A qualitative descriptive approach employing conventional content analysis is well suited to investigate perceptions and experiences of individuals yielding "a rich,

straight description of an experience or an event" (Neergaard, Olesen, Andersen, & Sondergaard, 2009, p. 2). A qualitative descriptive approach "seeks understanding of complex experiences, events or processes that are embedded within the human context" (Sullivan-Bolyai, Bova, & Harper, 2005, p. 128). In addition, Sandelowski (2000) identifies that "qualitative descriptive studies have as their goal a comprehensive summary of events in the everyday terms of those events". Given the state of the science regarding the process of the development of the nurse-patient assignment, a qualitative descriptive approach employing content analysis served to describe the process of the development of the nurse-patient assignment addressing the first aim and filling gaps in the literature.

Cho and Lee (2014) describe their approach to selecting between grounded theory and content analysis in part by considering the goals and rationale of research. Cho and Lee (2014) use their respective studies, which employ grounded theory and content analysis, to describe and justify their selections. This investigation shared similar goals and rationale for a qualitative descriptive approach using content analysis as Lee. Lee describes her choice of content analysis because she identified the goal of providing a description of specific attributes and dynamics of her setting of interest without the aim of developing theory. In contrast, Cho used grounded theory in part because she wanted to generate a theory explaining "how aesthetics … is handled in architectural design studios, [with specific attention paid to] the process of aesthetic education holistically…[including] what contributes to [the] education process and how each component of the process relates and interacts with the other components" (Cho, & Lee, 2014). If the literature provided more insight into the process of developing the nurse-

patient assignment and there was an aim of developing theory then a grounded theory approach may have been more appropriate to investigate decision-making.

The development of theory was not an aim of this investigation. In addition, qualitative descriptive work serves "to answer questions such as what, why and how" and this investigation focused on understanding what process charge nurses engaged in, what factors they considered, why they considered those factors and how they made decisions (Heikkilä & Ekman, 2003, p. 138). A qualitative descriptive approach with direct content analysis was appropriate given the phenomena, aims of the investigation, and current literature (Kim, Sefcik, & Bradway, 2016).

The modified Donabedian framework served as an a-theoretical conceptual framework to guide this investigation. The modified Donabedian framework fit the topic well because it serves as a means to facilitate the assessment of the quality of healthcare delivery. The nurse-patient assignment is an integral element guiding the organization of the delivery of nursing care and the manner in which care is organized can affect quality of care. Overall, the Donabedian framework provided a scientifically relevant means to conceptualization the investigation. The elements of the model were not used exclusively or directly to shape the questions of the semi-structured interview guide or identify specific codes for deductive analysis. An inductive approach to coding was taken and the modified Donabedian model was used to organize the inductively identified codes.

A combination of inductive and deductive approaches, however, is appropriate in certain qualitative descriptive analyses. Cho and Lee (2014) describe that "one unique characteristic of qualitative content analysis is the flexibility of using inductive or deductive approaches or a combination of both approaches in data analysis". Cho and Lee

(2014) continue to describe that "qualitative content analysis is flexible in the use of inductive and deductive analysis of data depending on the purpose of one's studies" (Elo & Kyngäs, 2008). The key difference between the two approaches centers on how initial codes or categories are developed. An inductive approach is appropriate when prior knowledge regarding the phenomenon under investigation is limited or fragmented" which was true in this investigation (Cho, & Lee, 2014).

In this investigation, an inductive approach was adopted. All codes relevant to the aims were included and organized within the elements of the framework. There were other inductively identified codes that were identified that did not specifically relate to the aims or elements of the modified Donabedian model. These codes were reflected on and considered as they related to the aims of the investigation and are worth further analysis and discussion but were not central to the aims of the investigation. No data analyzed and perceived as relevant to the aims of the investigation was excluded.

Setting, Sample, and Sampling Procedures

This study took place at a large northeastern acute care hospital with approximately 800 beds and fifteen medical surgical units. An initial goal was established to interview 20 charge nurses across four adult inpatient medical surgical units. Although the initial goal for the study was to interview 20 charge nurses, saturation was achieved after 18 semi-structured interviews (Coyne, 1997; Mack, Woodsong, MacQueen, Guest, & Namey, 2005; Patton, 2002). The decision to conclude interviews at this point was determined after no additional substantive variation or information were emerging (Fusch, & Ness, 2015; Guest, Bunce, & Johnson, 2006; Milne, & Oberle, 2005). The charge nurses who participated were volunteers. All the interviews were conducted in the

hospital except for one that was conducted in a private room in a library adjacent to the hospital. The interviews were conducted at times of convenience for the participants, in locations that they identified they would be comfortable, and that were free from distractions or intrusions that may interfere with the collection of data (Gill, Stewart, Treasure, & Chadwick, 2008).

Maximum variation purposive sampling was selected because this form of sampling helped achieve two of the main goals of the study (Allen, 2012; Green, & Thorogood, 2013). First, the study aimed to identify common perspectives, processes and decision-making patterns among charge nurses. Patton (2002) identifies that "any common patterns that emerge from great variation are of particular interest and value in capturing the core experiences and central, shared dimensions of a setting or phenomenon" (p. 172). A complementary goal, however, was to identify aspects related to the process, factors or decision-making related to patient care allocation that differed. Maximum variation sampling facilitated the identification of both common and varying perspectives. This sampling strategy was chosen with the understanding that cultures, patient populations and other factors may vary across units influencing charge nurse perspectives and the development of the nurse-patient assignment. Five charge nurses were interviewed on each of the first three units and three charge nurses were interviewed on the fourth unit. The sample size of charge nurses per unit (n=3-5) and in total (n=18) was larger than Allen (2012) who conducted a similar qualitative study investigating charge nurses' perspectives related to the development of the nurse-patient assignment which yielded substantive insight.

Inclusion criteria consisted of nurses who were currently designated as charge nurses on their unit and had been engaged in developing the nurse-patient assignment within the past two months for more than six months. This time frame was chosen to ensure that subjects had both recent and substantive experience in developing nurse-patient assignments from which to draw on to: 1) reflect on the process of the nurse-patient assignment development and 2) identify the significant factors that influence their allocation decisions. Allen (2012) used similar inclusion criteria to ensure participants would have adequate insight into the development of the nurse-patient assignment.

After Institutional Review Board approval was obtained, recruitment began by coordinating with the director of nursing research at the institution where the study was conducted. Then the nurse managers of each unit were contacted and informed that charge nurses on their unit would be approached to participate in a study (Appendix M). The nurse manager of each participating unit supplied a list of charge nurses and the amount of time each charge nurse has worked as a charge nurse on their unit and the primary shift they worked on (day or night). Nurses were then contacted via email and asked to participate. The information provided by the nurse manager was used to facilitate maximum variation purposive sampling.

Methodological Procedures and Data Analysis

The data was recorded, transcribed and coded by the researcher using the qualitative approach of conventional content analysis from a naturalistic paradigm (Hsieh, & Shannon, 2005). The chosen method is most "appropriate when existing theory or research literature on a phenomenon is limited" (Hsieh, & Shannon, 2005, p. 1279). The selected approach allows for the development of categories and category names to

emerge directly from the data (Hsieh, & Shannon, 2005). Another name for the approach is inductive category development. The interview script developed supports this methodological approach by posing open-ended questions followed by open-ended probes, which serves to avoid the interjection of preconceived categories (Hsieh, & Shannon, 2005).

The analysis of the data consisted of inductively identifying codes which were primarily in vivo codes based on the words of the participants. An inductive coding approach was chosen as a strategy to accurately represent the data capturing and representing charge nurses' perspectives by identifying terminology they used and with the aim of accurately reflecting their voices and perspectives. An inductive approach was also selected because there was limited literature on the topic. Cho and Lee (2014) identify that "an inductive approach is appropriate when prior knowledge regarding the phenomenon under investigation is limited or fragmented." The deductive element of the process served as a method to organize these inductively identified codes and align them with the aims of the investigation. This served to facilitate their analysis, discussion and presentation. Cho and Lee (2014) describe how "the deductive approach is appropriate when the objective of the study is to test existing theory or retest existing data in a new context." This investigation was not focused on testing theory or retesting existing data in a new context nor was there an aim to develop theory.

Then, for certain categories, analysis continued by "breaking down transcribed data into smaller units, coding or naming these units according to their content and/or concepts they represent, and categorizing or grouping coded material based on shared concepts" (Milne, & Oberle, 2005, p. 414). The identified codes were at times broken

down into smaller, more specific, units identified as sub-codes. These sub-codes served to capture the data on a more granular level. This specificity facilitated the discussion of key elements related to the development of the nurse-patient assignment. Then, after the data was organized and both codes and sub-codes were identified, analysis consisted of two additional levels. First, categories were identified and second, commonalities and differences were searched for among data from charge nurses (Ayres, Kavanaugh, & Knafl, 2003; Milne, & Oberle, 2005).

Originally, it was the researcher's intent to use the software ATLAS to facilitate the coding of data. After initial coding began using ATLAS the judgment was made by the researcher that a more thorough understanding of the data could be ascertained through a manual process with printed transcripts organizing content in an excel database. The use of software such as ATLAS may have expedited the analysis process through the automation of coding and comparison (Basit, 2003). Basit (2003) identifies that the decision to code manually or electronically depends on "the inclination and expertise of the researcher" and that "coding was an intellectual exercise in both the cases" and that either can serve as an appropriate approach to "organize and make sense of textual data". It was the inclination and previous experience of the researcher with this approach to coding that supported the close reading, organization and understanding of the data.

The development of codes and ensuring their consistency was addressed through the iterative process of coding and re-coding interviews at several time points (DeCuir-Gunby, Marshall, & McCulloch, 2011; Saldaña, 2015). After reading all the transcripts, the first cycle of coding involved reading the transcripts again and identifying data-driven

codes (DeCuir-Gunby, Marshall, & McCulloch, 2011). From this cycle of coding an initial set of codes were identified and defined which provided the foundation for the code book. These codes were then deductively organized using the elements of the modified Donabedian Conceptual Framework into the categories of Process, Structure and Prioritization (Fereday, & Muir-Cochrane, 2006). The mostly in vivo codes included terms like "updates" referring to an element of charge nurses' process, "nurse" relating to factors that were considered that related to nurses and "safety" as it related to prioritization (Saldaña, 2015). The interviews were coded again using the codebook allowing for new codes to be identified and with the acknowledgement that the code book may change given further analysis (DeCuir-Gunby, Marshall, & McCulloch, 2011).

Excel was used to facilitate the organization and analysis of coded data (Knafl, & Ayres, 1996). One Excel file served to manage all of the coded content from the eighteen charge nurse interviews. Within the Excel file, a separate worksheet tab was designated for each charge nurse interview. Each of these worksheets represented an individual case. The codes used in the codebook were populated, one per row, down the first column of each individual worksheet tab. The coded data in each interview was populated in the second column in the corresponding row for that code in the worksheet tab corresponding with each charge nurse's interview. All of the coded data from each of the interviews were entered into the corresponding charge nurse's worksheet tab in the row and columns associated with that code. This facilitated comparisons between charge nurses within and between units and led to the identification of patterns, themes and sub-themes with respect to the inductively identified codes. This approach to coding involving the manual

process of highlighting data and organizing within an Excel Workbook was also the method that Allen (2012) employed (Krippendorff, 2004).

Additionally, a second coder was selected to review three of the 18 transcripts. This coder was a PhD candidate at the same institution with experience both teaching qualitative methods and with qualitative data analysis. He was provided the codebook with the defined categories and the three transcripts. The researcher and second coder met to compare the coded data from the three transcripts. The researcher and second coder met and "reviewed discrepancies, resolving differences by in-depth discussion and negotiated consensus" (Bradley, Curry, & Devers, 2007). The most significant changes to the codebook included the elimination of a redundant sub-code which represented an overlapping concept and the supplementation of a vague definition of one of the sub-codes (Carey, Morgan, & Oxtoby, 1996). The interview scripts were then coded again using the adapted code book and new content was added to the excel database. The additional data identified in this cycle of coding were highlighted in red when added to the excel document and compared to the data previously coded. The additional coded data added to each case reinforced emerging themes providing further evidence of processes and factors identified in other cases. Authenticity and credibility was maintained by ensuring that themes were extracted from the data that reflect the insight of participant perspectives.

This researcher also collaborated with others as data was collected and analyzed to ensure quality and integrity of data collection and analysis. These individuals included a team of expert committee members, experts in qualitative research, and peers in an advanced methods course.

With respect to recruitment, each unit had two to five charge nurses that did not respond to email requests soliciting their participation. It is not expected that this represents a bias contributing to unrepresentative data for several reasons. First, charge nurses were selected with variation among several attributes that were identified as potential contributors to variation in responses. For example, attention was paid to select charge nurses with different years of experience. Charge nurses with as little as 2.5 years of experience to more than 15 years of experience developing the nurse-patient assignment participated. Similarly, charge nurses across day shift and night shift participated. Specific attention was also paid during analysis to the identification of both common and varying aspects related to the development of the nurse-patient assignment. The variation in perspectives among charge nurses appeared to be related more to variation among charge nurses' personal beliefs rather than their interest or availability to participate. Similarly, five charge nurses were interviewed on each of the first three units as a means to assure an adequate depth of inquiry into charge nurse perspectives on each unit. The analysis of charge nurses' interview data identified that no new significant concepts were emerging (i.e. saturation) which also supports the sufficiency of inquiry into each unit. Finally, charge nurses were willing to express sensitive information during the interviews so it did not seem that charge nurses were not responding because of a fear of discussing sensitive topics related to the nurse-patient assignment. The charge nurses who did not respond to requests to participate may have different email response habits, time constraints or interests in participation in research that are not associated with unrepresented views with respect to the nurse-patient assignment.

Rigor and Trustworthiness

This investigation integrated various strategies to ensure rigor and trustworthiness. These included prolonged engagement, peer debriefing, coding data at multiple time points, conferring with a second coder, developing an audit trail and field journals. Activities that contributed to prolonged engagement included intentional interactions with staff nurses, charge nurses, researchers, nurse managers and other administrators at the institution before, during and after the investigation. These interactions involved discussions regarding norms of unit culture, the work environment, human resources and other elements related to the nurse-patient assignment. In addition, the researcher engaged in peer debriefing with an advanced qualitative collective. With this group, the researcher discussed the research investigation as it unfolded discussing findings, challenges and other aspects of the investigation. The peers provided different perspectives and offered feedback, which facilitated the researcher's critical consideration and analysis of the data. The researcher also coded the data at multiple time points to achieve two aims. First, the codes from each cycle of coding were compared to ensure that they were being coded consistently. Additionally, the second round of coding facilitated a more comprehensive approach because revisiting the data offered another opportunity to identify data that may not have been coded in the first cycle of coding. An audit trail was kept detailing the steps of the research endeavor with dates identifying events such as when interviews were conducted or when adjustment were made to the codebook. Finally, the researcher developed field journals reflecting on the interview setting, interview content, the researcher's perceptions of the interview and other pertinent details.

Interview Guide and Interview Procedures

To achieve the aims of this research study, face-to-face semi-structured interviews were conducted with registered nurses in the role of charge nurse because charge nurses are responsible for the development of the nurse-patient assignment. The one-on-one interview format was selected to allow for an exploration of personal perspectives related to the process of developing the nurse-patient assignment (Gill, Stewart, Treasure, & Chadwick, 2008). The interview guide (Appendix C) consisted of open-ended questions with probes to facilitate the thorough exploration of salient factors mentioned by the charge nurse participants (Carey, Morgan, & Oxtoby, 1996). The guide was adapted during and between interviews to investigate topics and themes that organically emerge from the interactions that were not previously included in the script or probes (Sandelowski, 2000; Sandelowski, 2010). The interview guide was modeled after the literature review and conceptual framework. The guide specifically focused on elements of the process of patient care allocation in the context of the nurse-patient assignment, what factors charge nurses considered and how they prioritized these factors.

The researcher piloted the interview guide on one nurse who met the inclusion criteria for the study. This nurse was not chosen from a unit where subject recruitment took place, but did work on a medical surgical floor in the same institution. This nurse provided feedback on the researchers' questions and interview style.

The interview guide was organized around the conceptual framework and reflected the study aims, which included the investigation of the process of patient care allocation in the context of creating the nurse-patient assignment, the factors that charge nurses find salient to the process, how these factors are considered and what training or

mentorship they were provided. The interview guide was divided into five sections to investigate these topics.

The first section of the semi-structured interview guide introduces the topic of patient care allocation broadly so that each charge nurse describes the process from their perspective using familiar terminology. After common vocabulary was established, such as “charge nurse” and “nurse-patient assignment” (the role of the nurse designated to allocate patient care and the name for the process of patient care allocation respectively), more specific questions followed in the second section. The second section, focused on the specific steps of patient care allocation and the factors that influence the process. The third section focused on how charge nurses consider these factors when allocating patient care to make the nurse-patient assignment. The fourth section investigates the training and preparation that the charge nurse received to prepare them for their role as a charge nurse.

The interview script and interview techniques used were designed to facilitate the participants’ “freedom to speak”. For example, the informed consent explained the researcher’s interest in soliciting the participant’s unique and open perspectives of the process of patient care allocation through the development of the nurse-patient assignment. The interview script began with broad open-ended questions to allow the participants the freedom to offer reflections characteristic of their perceptions (Gill, Stewart, Treasure, & Chadwick, 2008). More specific probes followed the broader questions to ensure a rich description of relevant topics was obtained (Gill, Stewart, Treasure, & Chadwick, 2008; Milne, & Oberle, 2005).

The coder did not have any prior direct professional or personal relationship with any of the charge nurses that participated in the study. Although the charge nurses that participated in the study and the coder worked in the same hospital, they did not work on the same unit nor did any charge nurse work in the same building as the coder within the multi-building hospital. A few of the charge nurses that participated were familiar or recognizable to the coder as employees of the hospital; however, the coder had no prior direct interactions or conversations with the charge nurses that participated in the study prior to the study.

Card Sort

The fifth section of the interview consisted of a card sort. A card sort activity can serve as an effective strategy to provide insight into conceptual approaches, dynamics and decision-making (Faiks, & Hyland, 2000; Guadagnoli, & Ward, 1998; Santos, 2006). Faiks & Hyland (2000) identify the importance of an intentional approach to the development content for cards from the literature. A review of the literature identified that charge nurses consider nurses and patients when making the nurse-patient assignment but that it is not always clear how they prioritized them in relation to one another and why (Allen, 2012; Bostrom, & Suter, 1992; Sir, Dundar, Steege, & Pasupathy, 2015). The identification of these factors considered by charge nurses and the gap in the literature provided the foundation for the content of the five unique cards and the concept to be explored respectively.

This final element of the investigation was conducted by providing charge nurses with these five cards. The card sort activity consisted of a prompt which stated: When making decisions about the nurse-patient assignment. Then charge nurses were

asked to order the cards from most characteristic to least characteristic of their decision-making when making the nurse-patient assignment. The cards included the following statements:

- When making decisions about the nurse-patient assignment patients' needs and preferences are considered the highest priority
- When making decisions about the nurse-patient assignment nurses needs and preferences are considered the highest priority
- When making decisions about the nurse-patient assignment the needs and preferences of patients and nurses are equally prioritized
- When making decisions about the nurse-patient assignment nurses' and patients' needs and preferences are considered but the needs and preferences of the patients are considered the highest priority
- When making decisions about the nurse-patient assignment nurses' and patients' needs and preferences are considered but nurses' needs and preferences are the highest priority

The charge nurses asked to place them in order on the piece of paper with the prompt (Appendix D). The charge nurses were then asked to explain why they sorted the cards in the manner that they did. This concluded the interview and at this point the charge nurses were asked to fill out a demographic form.

Human Subjects Considerations

Before the initiation of each interview, the researcher obtained informed consent from the participant. The scope and nature of the investigation was described to the participant. It was explained, during the informed consent process, that the participant may discontinue or withdraw from participation in the study at any time for any reason, that all identifying elements would be redacted from the transcribed recordings, and that the recordings would be destroyed when transcription was complete. All data obtained

was stored in an encrypted, password protected database. Only the researcher and research team had access to the research data.

The study was approved by the University of Pennsylvania Internal Review Board who determined that the investigation qualified for exemption. The researcher had no contact with patients or vulnerable populations. It was unlikely that the interviews would result in psychological discomfort but there is always the potential for risk of psychological discomfort related to reflections on workplace issues that could be stressful. Participants were reminded that they could withdraw at any point and were under no obligation to answer any questions. The charge nurses may have benefited from a structured exploration of how they develop the nurse-patient assignment in their clinical setting.

Chapter IV

Results

Introduction

The purpose of this study was to gain insight into charge nurses' perspectives related to the development of the nurse-patient assignment. The aims were to describe charge nurses' perspectives on the development of the nurse-patient assignment and the factors that influence nurse-patient assignment allocation decisions within their adult medical-surgical unit.

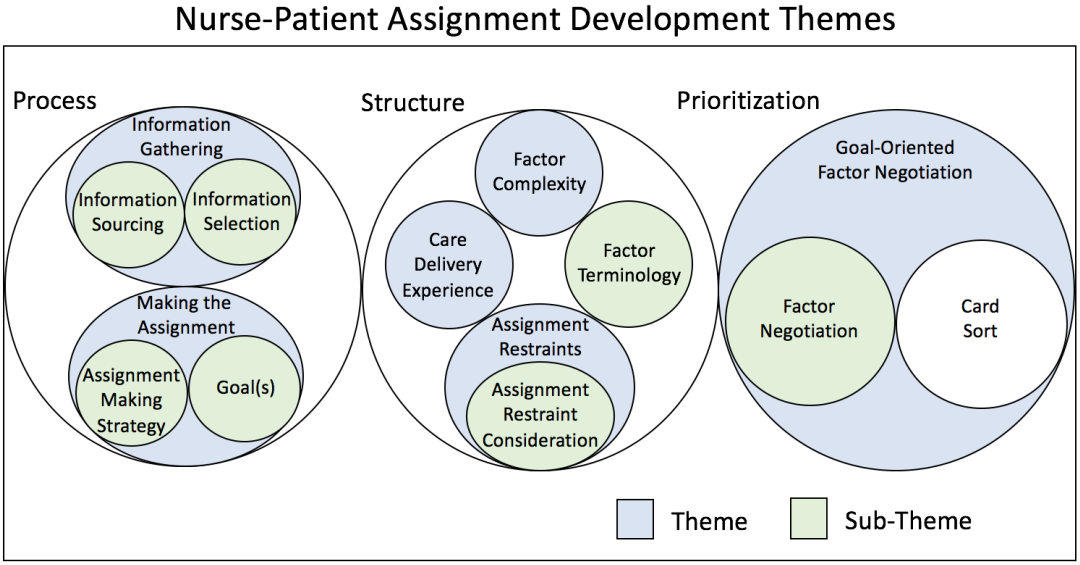
These aims were operationalized for this investigation by developing three sub-aims. The three sub-aims were to describe the process of charge nurses' development of the nurse-patient assignment, the factors charge nurses find to be most and least important and how charge nurses prioritize these factors. These three sub-aims were informed by the literature review which revealed limited investigation into these elements of charge nurse development of the nurse-patient assignment. These sub-aims also guided the design of the investigation and the conceptual framework.

A qualitative descriptive design was used with a semi-structured interview guide to elicit descriptions from charge nurses regarding these three sub-aims. The semi-structured interview guide included sections inquiring about the process of the development of the nurse-patient assignment, the factors charge nurses consider and how they prioritize these factors. Specific attention was paid to characterizing how charge nurses conceptualize the development of the nurse-patient assignment, what types of decisions they make and what influences these decisions. Additionally, charge nurses were asked to participate in a card sort activity which provided further insight into their

decision-making process related to how they prioritize nurse and patient factors when developing the nurse-patient assignment.

The charge nurse interviews revealed similarities and variation among charge nurses both across and within the four sampled units with respect to Process, Structure and Prioritization. The themes, categories and codes for each sub-aim were inductively identified and then deductively organized into the categories of Process, Structure and Prioritization. The presentation of the findings has been organized to mirror the conceptual framework. The findings are presented in the sections of: Process, Structure and Prioritization. The themes and sub-themes identified are represented in a nested fashion within these three framework elements (Figure 2).

Figure 2.



The themes describe the similarities among all the charge nurses. The two Process themes include Information Gathering and Making the Assignment. The Structure themes include Factor Complexity, Care Delivery Experience and Assignment Restraints (factors

that charge nurses reported considering when developing the nurse-patient assignment). Finally, the primary Prioritization theme is Goal-Oriented Factor Negotiation.

Sub-themes were also identified that revealed variation, both between and within units, regarding the mechanics of how charge nurses developed the nurse-patient assignment. Within Information Gathering, sub-themes of Information Sourcing and Information Selection occurred. Within Making the Assignment, subthemes of Assignment Making Strategy and Goal(s) occurred. Within Structure, there is a sub-theme Factor Terminology. There is also a sub-theme within the theme of Assignment Restraints which is Assignment Restraint Consideration. Finally, within Prioritization, there is one sub-theme within Goal-Oriented Factor Negotiation which is Factor Negotiation.

Along with the analysis of themes and sub-themes, the Card Sort activity informed how charge nurses prioritized factors related to the nurse-patient assignment. The card sort activity also provided insight into how charge nurses prioritized nurse and patient factors as they relate to the development to the nurse-patient assignment.

These collectively serve to characterize how charge nurses within and across units approached the development of the nurse-patient assignment. This chapter will discuss the findings within the sections of Process, Structure and Prioritization, which align with the three sub-aims of the investigation and conceptual framework.

Overview of Sample Characteristics

The sample for this investigation consisted of 18 charge nurses at a large northeastern acute care magnet hospital. The 18 charge nurses worked on four different medical-surgical units. Five charge nurses were sampled from each of the first three

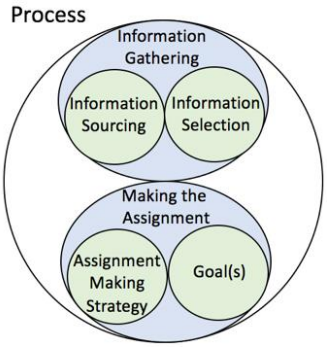
medical-surgical units and three charge nurses from the fourth medical surgical unit. Charge nurse participants ages ranged from 27 to 57 with a mean of 37 (SD = 10.17). The sample reflects 10 charge nurses that worked day shift and 7 charge nurses that worked night shift with one charge nurse that rotated working days and nights. All charge nurses had been responsible for making the assignment for more than 6 months and 9 of them for more than 4 years. Sixteen of the charge nurses identified as female and 2 identified as male. Eleven (61 percent) charge nurses identified having advanced certifications. Fifteen (83 percent) charge nurses reported having a Bachelors of Science in Nursing, two a Masters of Science in Nursing and one an associate degree. The average number of years' charge nurses reported working on their current unit was 7.4 (SD=3.5) and the average number of years' charge nurses reported working as a staff nurse in any clinical setting was 11.6 (SD=8.9). No charge nurse reported receiving ethics training related to the development of the nurse-patient assignment. No charge nurse reported a formal system to assess the quality of the development of the nurse-patient assignment. Four (22 percent) charge nurses reported evidence-based literature integrated into their approach to the development of the nurse-patient assignment. (Table 1)

Table 1.

Characteristics of Sample	*(N=18)*		
Gender	16 Female	2 Male	
Primary Shift	10 Day	7 Night	1 Rotating
Highest Degree	15 BSN	2 MSN	1 Associate
Certifications	11		
Ethics Training	0		
Formal Assessment of Quality	0		
Evidence Based Practice	4		
	Average	**Range**	
Age	37	26-57	
Years as a charge nurse	>4 years	2.5-15	
Years on current unit	7.4	2.5-15	
Years in any setting	11.6	3-18	

Aim 1-a: Describe the process of patient care allocation for the nurse-patient assignment

Process



"Getting the information from the nurses, the updates, what's going on…[helps] you make a decent assignment." (R6-3)

Charge nurse descriptions of the process of developing the nurse-patient assignment revealed two stages. These stages are Information Gathering and Making the Assignment. The terms "information gathering" and "making the assignment" served well to characterize the two stages of assignment development as they were terms that charge nurses on all units used to describe their process.

Information Gathering involves the acquisition of information by charge nurses thought valuable to the development of the nurse-patient assignment. It represents how charge nurses across all four units have developed specific mechanisms through which to

collect and organize information so that it can be leveraged to inform the development of the nurse-patient assignment.

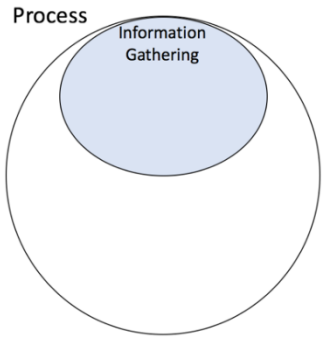
Information Gathering facilitates moving towards Making the Assignment. Making the Assignment occurs when staff nurses are designated patients for whom they will be principally responsible for providing care to during their shift. It represents a theme within the process of developing a nurse-patient assignment because each charge nurse on all the units has an approach with shared elements through which they make the nurse-patient assignment.

The development of these themes was facilitated by the identification of codes and sub-codes. Sub-codes served to identify variation within the themes of Information Gathering and Making the Assignment. Some of these sub-codes were in vivo codes such as ‘updates’ and ‘report’ which were terms charge nurses used to describe elements of their process. These led to the identification of the sub-themes of Information Sourcing and Information Selection within the theme of Information Gathering. The same approach identified variation within the theme of Making the Assignment which yielded the sub-themes of Assignment Making Strategy and Goal(s).

The sub-themes within Information Gathering reflect how some charge nurses consulted different sources (Information Sourcing) when gathering information to inform the development of the nurse-patient assignment and some charge nurses selected different information to collect (Information Selection). Within the theme of Making the Assignment, charge nurses reported different strategies with respect to how they developed the nurse-patient assignment. These strategies identify varying conceptual approaches and tools. Similarly, charge nurses’ descriptions revealed variation in the

goals that they aim to achieve when making the nurse-patient assignment. These two elements of variation represent the sub-themes of Assignment Making Strategy and Goal(s) respectively within the theme Making the Assignment.

Information Gathering.



"Basically you [want to] gather all the information." (R9-4)

On all four of the units, charge nurses engage in various steps focused on the collection of information to develop the nurse-patient assignment. Charge nurses on all units specifically described the gathering of information as integral to develop the nurse-patient assignment. One described "getting the information from [staff] nurses, the updates, what's going on" as an important part of their process. (R6-3) On another unit the charge nurse describes how they "try to gather all the information that [they] can." (F14-2) A charge nurse on a third unit stated: "If I don't have all the information, I can't do the whole assignment." (R9-3) This section will outline the common sources from which charge nurses gather information.

Schedule and Previous Nurse-Patient Assignments.

Two of the resources that all charge nurses consulted included the schedule and the nurse-patient assignments of staff nurses from the previous shift or shifts. From these resources, they would identify the staff nurses that were working the next shift and which of those staff nurses had worked the previous shift respectively. This was often referenced in the context of starting their process. One charge nurse described that they "used to start it sometimes at like 1:00 a.m. [and] would just put down who's back

tomorrow and just set it aside." (R9-1) To "put down who is back" they would need to have referenced the schedule and previous nurse-patient assignment.

Charge nurses would often start with this step. This was reinforced by a charge nurse on another unit who communicated, "I usually see who [worked] the night before, and if they're [returning]." (R6-5) Some charge nurses would reference nurse-patient assignments several shifts back identifying that they have a "book that [has] written down all the patient assignments, so I'll look in that book to see if that nurse was here like two days ago". (R9-2) Very similar sentiments were expressed by all charge nurses across all the units regarding this as being one of the first steps in the process of developing the nurse-patient assignment.

Charge Nurse-Charge Nurse Report.

One of the other initial steps of the process involved getting report from the previous shift's charge nurse which one charge nurse described as "walking rounds" where the charge nurses would "give report to each other." (R6-4) This was an element of the process mentioned by charge nurses on all units. This occurred at change of shift and occupied approximately the first half hour of the shift. It involved the exchange of information about specific patients deemed to be especially significant for a clinical or other reason. These exchanges also involved discussions of aspects related to unit dynamics, staffing and a report on all patients on the unit. One charge nurse described how,

> In the morning, when I finish receiving report, I go for my rounds prioritizing those who are on the radar, those who need a lot of help and a lot of assistance, and …I already have my list of nurses for night shift, and I would know if I have more senior nurses or junior nurses for night shift, so I would know how to divide…the patient load. (R6-1)

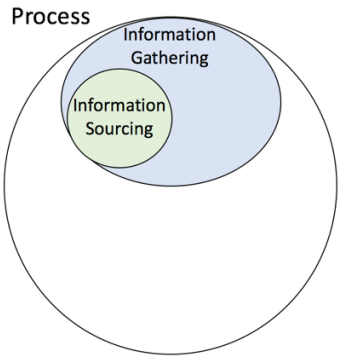
Here the charge nurse identifies both that they have already referenced the list of staff nurses who will be working the next shift and describes how, during report with the charge nurse from the previous shift, certain patients were identified as “on the radar”. This exchange of information between charge nurses informs the development of the nurse-patient assignment and was described by a charge nurse on another unit by stating: “It’s all trust and giving each other feedback, between the bedside nurses and the charge nurses, and even between peers, the charge nurse to charge nurse feedback is [kind of] the best way.” (R9-4)

Staff Nurse Updates.

The next and final common element of the ‘information gathering’ phase consists of charge nurses reaching out to each staff nurse to communicate about each of their patients. One charge nurse described that they “…like to get the feedback from all the [staff] nurses, their updates of all the patients.” (R6-5) Another charge nurse on the same unit reiterated this as a part of their information gathering process by describing, “I delay making this assignment because I would like to hear from the [staff] nurses…when I get updates.” (R6-3) Here the charge nurse identifies how valuable the information is that they receive from the staff nurses about each of their patients. One charge nurse reiterates the value of the information they gather from staff nurses stating that they “haven’t been taking care of that patient for 12 hours. [So they] have no idea what it takes to take care of that patient for 12 hours.” (R9-4) The staff nurses’ updates often served to provide the best understanding of the experience of caring for each of the patients.

These four practices, reviewing staffing and previous nurse-patient assignments, communicating with charge nurses, and getting updates from staff nurses serve as the unifying aspects related to the 'information gathering' stage of nurse-patient assignment development. They all consist of targeted efforts to collect information which will be synthesized to make the nurse-patient assignment. These four activities, however, are not inclusive of all the steps that charge nurses reported regarding the collection of information. These other steps will be discussed in the context of the sub-theme Information Sourcing.

Information Sourcing.



"You don't always have the information [because] you just—you want to know everything…and you can't." (F12-3)

The pursuit of accurate and current information was communicated as a priority by charge nurses. More specifically, the quality, completeness and timeliness of data collection were described as factors influencing the development of the nurse-patient assignment. Charge nurses would strive to collect all the information that they believed would afford them the best understanding of what they believed they needed to know to develop the nurse-patient assignment. What will be highlighted here is the variation with respect to where charge nurses described sourcing this information.

As previously outlined, all charge nurses described engagement in four steps to equip them with information. This involved referencing the staff nurses' schedule and previous nurse-patient assignments, and communicating with the previous shift's charge

nurse, and with staff nurses for “updates”. Some charge nurses, however, described gathering information from other sources.

Staff Nurses (Beyond Updates).

One element of variation related to ‘information gathering’ occurred when charge nurses consulted with other staff nurses apart from when they received “updates” during their rounds with staff nurses. While the development of the nurse-patient assignment is described by charge nurses as their singular responsibility, charge nurses do consult with other staff nurses to varying degrees as well as getting updates to assist with the development of the nurse-patient assignment. In one case, it was for professional support. They described,

> If I call my friend over, that's also a fellow charge [nurse], to sit down with me… just to look over [the assignment], a lot of times, they always have their, priority…so they might want to move this person here, so they only have to give report to two people…I think, overall, I still take it as it's my thing, and, overall, I have to be the one that okays it and…I still see the big picture, [because] they come in piecemeal to help, you know? So it's not really fully someone else, but it's more emotional support. (F12-3)

In another instance a charge nurse expressed the importance of including the input of staff nurses into the development of the assignment beyond just providing updates on their patients and apart from emotional support. This charge nurse described “when I make my assignment, I talk to some [staff] nurses [and ask them to] look at my assignment. Do you think this is good enough, is fair enough? And they’re…always helpful… it’s very, very important that the [staff] nurses have a voice on the assignment.” (R6-1)

Other times staff nurses will independently provide their perspectives, unsolicited by the charge nurse, as a means of influencing the development of the assignment. One charge nurse explained,

> Usually, after I make the assignment, one or two of the other nurses will look over it, and sometimes they'll be, like, "Oh, you [want to] put, like, this patient with this patient and this nurse?" And…sometimes I'll change things that they'll bring to my attention that I didn't really know about or think about. (F12-5)

One other type of staff nurse involvement in the nurse-patient assignment development process refers to nurse input and preferences communicated during the previously described step of charge nurses receiving updates. Sometimes, for example, staff nurses will give advice to the charge nurse saying "don't give [them] back to this person," or "my assignment was heavy…today. Don't give somebody this patient and this patient together." (R9-2) These represent a way in which staff nurses may also be involved, and overlaps with the previously described process of charge nurses soliciting patient updates. It is unique in that it involved the communication of specific advice by the staff nurses to the charge nurse about how to develop the nurse-patient assignment as opposed to merely providing patient data for the charge nurse to consider independently when making the nurse-patient assignment.

Patients.

One charge nurse highlighted the value of reaching out to patients stating that they do "charge nurse rounding" which involves "speaking with the patients too." (R9-2) This charge nurse identified how this allows them to gain insight into the patient experience in ways that may inform the development of the nurse-patient assignment. In one example this charge nurse described that, one patient on her rounds conveyed, "All of

the [staff] nurses have been great, but this one nurse I couldn't understand her [because] she has a thick accent," and that the patient did not want that nurse again. (R9-2) In this charge nurse's description, she stated, "We do charge nurse rounding" which alludes to a unit-driven process inclusive of routine interactions with each patient. No other charge nurse on that unit, however, specifically mentioned 'rounding' as part of their process. Only two other nurses on one other unit mentioned this as part of their process. One by communicating "during my rounds in the morning" they would ask the patients "how's your nurse at nighttime?" and "some patients really would verbalize like, "I don't like my nurse last night, and I'm afraid she's coming back tonight. If possible… could [you] change my assignment." (R6-1) The other charge nurse stated: "In the beginning, after I get report, ideally we should make rounds and just lay eyes on the patient and introduce ourselves." (R6-3) It may be that more charge nurses do formally round on all patients as a standardized part of their process; however, other interviews suggested that most interactions between the charge nurse and patients were incidental, in the context of answering a call bell or helping a staff nurse with an element of direct patient care, and not as part of a formal rounding process.

Other Stakeholders and Resources.

Charge nurses also reported reaching out to physicians, and referencing the electronic medical record, a "report sheet" and the "NaviCare Board" (an electronic resource for patient census). Additionally, there was also a reference made to an "all staff huddle" as a means of facilitating another level of communication. Each of these served to provide additional perspective into the dynamics and experiences of those directly or peripherally associated with the provision of patient care.

The "all staff huddle" consisted of a meeting with all the staff nurses on the unit at a designated time. The charge nurse described that they normally

> …call a huddle about 8:30. And we get information at that time. [Do] anybody's patients [not] look well. Or [do] you need any help…I normally do a huddle, so I kind of know about everybody's patient. So I know who's having a difficult time and who's not because I call a huddle every day. (F12-1)

No other charge nurse on this or any other unit mentioned a "huddle" as part of the nurse-patient assignment development process. Nevertheless, it was a step that this charge nurse identified as an element that facilitates their understanding of patient, nurse and unit dynamics informing their development of the nurse-patient assignment.

Several charge nurses discussed sourcing information from doctors and electronic medical records. Two nurses on different units referred to reaching out to physicians if they needed more information. One stated, "I can always ask if I have a question, I'll just like call the doctor." (F12-3) Two other nurses referenced searching for information in the electronic medical record to inform their development of the nurse-patient assignment stating, "I'll go look it up myself" (R6-5) and "I could look it up in [the electronic medical record]. So it's not like it's not available." (F12-3)

Finally, three of five nurses on one unit, identified the utilization of a 'report sheet' which was a mechanism of recording and tracking information related to patients that was useful when developing the nurse-patient assignment. One described how "The charge nurse has a report sheet on every patient on the floor." (F12-5) Another elaborated by identifying how the report sheet facilitated the organization of patient factors including the "difficulty" of patients which was an element of their assignment making process. They described,

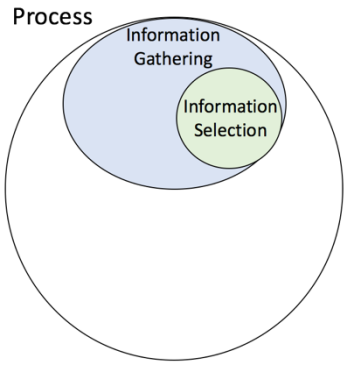
> …because we have that sheet in front of us, okay, this one might be difficult. He's got wounds. He's got [a tracheostomy]. He's got PEG. So it's easy to assign a patient that way [because] we know everything about that patient. And when we have 'completes' (a designation for specific patients), we normally circle the 'completes' on our sheet in the morning. (F12-1)

A final charge nurse identified referencing a separate electronic resource that tracks the patient census on their unit and provides advanced notice when new patients will be admitted to their unit. This is called the NaviCare Board. They describe:

> What I do is when I'm getting report, one of the sheets that's given to us, it tells us how many nurses are coming on. I'm looking at the NaviCare Board and seeing, [that] we have X amount [of patients]—let's say the board (i.e. unit) is full [of patients]. So I'll already have an idea how many nurses will get how many patients. (R6-3)

In summary, charge nurses described sourcing information or retrieving information using eleven strategies. The first four included staff nurses providing information regarding their patients to charge nurses "updates", communication between charge nurses "report", and reviewing staffing for the upcoming shift by referring to the schedule and referencing the nurse-patient assignment from the previous shift. In addition, some charge nurses described strategies like using "report sheets", reaching out to physicians, communicating with patients, conducting a "shift huddle", sourcing information from the electronic medical record, referencing the "NaviCare Board" and receiving input from other staff nurses beyond "updates". Together these represent the reported approaches through which charge nurses described "information gathering".

Information Selection.



"Sometimes when nurses come over [from other units] …they might…get like four patients on isolation, but that's not something we really look at when we're making the assignment." (F14-3)

The information that charge nurses collect drives how they make decisions about the nurse-patient assignment as it serves as the data from which evaluations and prioritizations are made. As the interviews have demonstrated, there was variation in where charge nurses got information. Also of note, however, even among the charge nurses that consulted the same stakeholders and utilized the same tools to track information, there was variation among what information they solicited and recorded. The charge nurses selectively choose what information to collect and how and when to utilize it to inform the development of their nurse-patient assignment. This section identifies how unit-driven frameworks influence what information is selected.

Two of the four units have patient ranking models which they use to assign numeric ratings to patients. The process consists of each of the staff nurses providing a subjective ranking of each of their patients on a 1, 2, or 3 scale. On one of the units it was described simply as "a very general scale" of one, two or three where "one is the easiest patient. Two is a moderate patient. Three is a really hard patient." (F12-1) Another charge nurse on the same unit elaborated describing that patients are assigned a numeric value of,

> …one to a three. [A] 'one' is basically a self-care patient, not much needs. And it's basically subjective. And [a] 'two' is a patient [which needs] a little bit of assistance getting up to the bathroom. [A] 'three is a complete care patient. Sometimes patients that are self-care patients, independent, they can [be] rated as

> 'three' depending on their needs. Sometimes they are on the call bell a lot. Sometimes they need a lot of communications. You're constantly in the room. They require a lot of our time, so we sometimes rate them as 'three', too. That's why I said it's subjective. (F12-2)

A charge nurse on the other unit that uses a similar ranking system refers to it as an acuity scale. They described that they "…have an acuity scale, one, two and three. Three being the hardest…one being the easiest." (R9-1) This scale functions in a similar way.

The latter of these two units, with the scale identified as an acuity scale, also tracks patients with tracheostomies in addition to tracking patient ratings as reflected by their scale. This charge nurse describes "we have all the fresh trachs [patient with new tracheostomies] in the hospital" which is something they track. (R9-1)

The two other units sampled do not have scales to rank patients. They track different factors. A charge nurse on one of the units describes broadly tracking "complex" patients or ones "on the radar". These patients were identified as ones who received "esophagectomies, the first three days out…lung volume reductions, pneumonectomies… [patients receiving] chemo, depending on what they're getting… really anxious patients…and then confused patients." (R6-4) In short, they did not formally track any one or two factors specifically. The charge nurse described that rather they "just [kind of] go off of our patient report" and a judgment call is made as to who would fall into one of the categories: "complex" or "on the radar". This was reiterated by the other charge nurses on this unit, describing how they "[prioritize] those who are on the radar those who need a lot of help and a lot of assistance... [such as] post op

esophagectomy…post op pneumonectomy…certain drips…patient who needs to be suctioned frequently." (R6-1)

Finally, on the last of the four units, charge nurses reported tracking patients using a binary system where patients were identified as to whether they were a "complete" patient or not. They describe that they will "go and ask people who their completes are, and that's just like somebody who…is usually incontinent and can't stand." (F12-2) They do not specifically track any other patient factors on this unit. One charge nurse describes how they are aware that some units

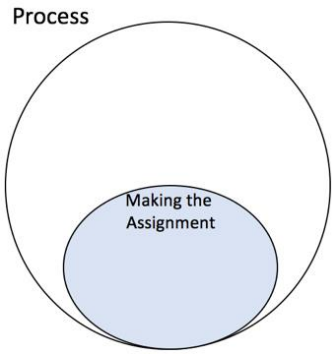
> …don't want to give one [staff] nurse… three teles [patients on telemetry monitoring]. We don't really think much about that on our unit. Like, we don't really think, oh, this [staff nurse is going to] have three teles or three finger sticks [patients requiring blood glucose monitoring]. People usually don't complain about that. The big complaint is the completes. (F12-3)

Two of the five charge nurse interviews on this unit seemed to have their own unique sub-categories of "completes" or rankings of completes. One stated "I know the ones that are completes or the ones that may be semi-completes, completes being they can't do anything for themselves, and the semis…they can do a little." (F12-1) Another referenced "really heavy, complete patients" (F12-5) that they tracked.

Additionally, some charge nurses on some units considered whether patients are on "contact isolation". They explain: "The other thing I would [check] is if the patient is on contact isolation" because that was a factor that informed their assignment. (R9-5) This is in contrast, however, to a charge nurse on another unit who describes "sometimes when nurses come over [from another unit] they might by accident get like four patients on isolation, but that's not something we really look at when we're making the assignment." (F14-3)

In summary, these examples serve to highlight how charge nurses identify certain factors to specifically track, which may be influenced by their typical patient population, and which inform the development of the nurse-patient assignment. Why these factors are specifically tracked and how they are specifically integrated into the development of the nurse-patient assignment will be discussed in more detail later. As outlined here, however, charge nurses described differentially tracking several factors on their units as part of their process. These are not intended to be representative of all the factors considered or even all the factors that are tracked by specific charge nurses. This merely serves to illustrate how different factors were identified to be tracked by charge nurses between units. This highlights variation in the process of developing the nurse-patient assignment within "information gathering".

Making the Assignment.



"That is, in a nutshell, exactly how I make an assignment." (R9-4)

Making the Assignment involves the filtering of information into a given series of constraints and value judgments to produce a nurse-patient assignment that aligns with the charge nurse's respective goal or goals. This constitutes the more conceptual part of the nurse-patient assignment development process.

The theme Making the Assignment was identified for several reasons. First, it is reflective of charge nurse terminology referring to the assignment of patients to nurses for the provision of care for the upcoming shift. Charge nurses on all the units described this as "making the assignment". It was also selected because it serves to broadly capture

the shared elements of how charge nurses within and across units allocate patients to staff nurses for the provision of nursing care.

Charge nurse descriptions of making the assignment served to identify similarities across all the charge nurses. These include four shared practices: the synthesis of information, the utilization of tools, a goal-oriented approach and assignment drafting. This section will describe each of these as shared elements of charge nurses' approach to the development of the nurse-patient assignment.

Synthesis of Information.

Each charge nurse described an intentional approach to the consideration of the information they gathered to make the nurse-patient assignment in a way that aligned with their goals. Charge nurses' synthesis of information shared common elements. These include the aims of: maintaining continuity of care, one-to-one nurse report, distributing discharges between staff nurses' assignments, and distributing 'specific patients' between staff nurse assignments. These do not reflect overarching goals but rather smaller aims described by charge nurses within and across units. These four conceptual charge nurse aims will be discussed identifying how charge nurses synthesize information identified in the information gathering stage.

Continuity of Care.

Continuity of care with respect to the development of the nurse-patient assignment refers to the assignment of patients to staff nurses that they cared for on the last or a recent shift. Charge nurses identified maintaining continuity of care as a priority. This was facilitated by the common information gathering elements of referring to the previous nurse-patient assignment and the schedule for the upcoming shift. One charge

nurse states how "…unless something was said to me, I usually give nurses back patients that they had before." (F12-5)

This was reinforced by a charge nurse on another unit who communicated how they "…usually see who [worked] the night before, and if they're [returning] they probably, 99.5 percent of the time, they'll get the same assignment again." (R6-5) Very similar sentiments were expressed by all charge nurses across all the units regarding this not only being one of the first steps in the process when making the nurse-patient assignment but as a priority. This reflects how charge nurses synthesize the information gathered from the schedule and past nurse-patient assignments to achieve the aim of maintaining continuity of care.

One-to-one Nurse Report.

One-to-one nurse report refers to the development of the nurse-patient assignment in a way that minimizes the number of staff nurses that a staff nurse would need to exchange patient information with during change of shift. So, for example, if one staff nurse was exchanging their entire assignment of patients with one staff nurse, this would constitute a one-to-one change of shift report. Charge nurses described how it was less efficient and less desirable for the staff nurses to have to give report to multiple staff nurses. This was identified as an aim of charge nurses that they tried to accomplish when possible. One charge nurse described how "…in an ideal world when all the numbers match for acuity, I'll try to [make the assignment] so [the staff nurses] don't have to give report to four different [staff] nurses." (R9-2) A charge nurse on another unit describes how they "…try to give [staff nurses] coming on all [matched assignments], so it's only one [staff nurse] giving a report to another [staff nurse] as opposed to mixing them all up

and giving one [patient] to this [staff nurse], another [patient] to this [staff nurse]." (F12-2) The charge nurses describe that they aim to develop the nurse patient-assignment in this way because "it helps report go a little faster if you only have to give report to one [staff nurse] instead of five [staff nurses]." (F12-5)

This was an aim expressed by charge nurses on all the units and serves to demonstrate how charge nurses intentionally collect specific information and synthesized the information in similar ways to inform the development of the nurse-patient assignment. Although this was an aim considered by charge nurses, it was not considered as a high priority. This provides some insight into how charge nurses commonly consider specific aims such as one-to-one nurse report.

One final reference to one-to-one staff nurse report, however, also provides perspective into the complexity and nuance of how certain factors are uniquely synthesized within the context of broader, higher order, goals and competing priorities. One charge nurse described that they are aware that "the [staff] nurses don't like to give report to three different nurses, which I understand. However, it really isn't about the [staff] nurse. It's about the patient, what's best for the patient." (R6-5) How charge nurses negotiate competing priorities uniquely will be discussed in further detail in the Goals and Prioritization sections. Nevertheless, all charge nurses acknowledged one-to-one report as an aim and something they tried to accommodate when synthesizing factors associated with making the nurse-patient assignment.

Distributing Discharges.

The even distribution of discharges was an aim that charge nurses expressed as a priority for night shift charge nurses. This involved the assignment of patients who would

be discharged from the hospital the next shift equally across nurse-patient assignments. A night shift charge nurse described:

> When we get updates we do ask the nurse, the night shift [staff] nurse, "Do you have anyone being discharged the following day" … that does play a [role] in [making] the assignment. We might try to keep it to at least like two discharges [because] we discharge pretty frequently. (F12-4)

A charge nurse on another unit described "we take into account discharges, trachs, and acuity. So … I try to split up the heaviest patients, the trachs, and the discharges evenly." (R9-3) A charge nurse reiterates, "you don't [want to] have three discharged and get three brand new patients back in a day." (R9-2)

Charge nurses that worked night shift described the common practice of soliciting information regarding whether patients would be discharged the next shift and then they synthesized this information in a common way which was to strategically consider how to distribute these patients equitably among nurses' assignments.

Targeted Patient Distribution.

Charge nurses on each unit identified specific types of patients to track as a means of informing the development of the nurse-patient assignment. As previously outlined in the Information Selection sub-theme, charge nurses on units tracked specific patient factors and two units tracked staff nurses' rankings of patients on three-point scales. Charge nurses on another unit reported tracking patients identified as "completes" and patients on isolation. Other factors that were tracked included patients with new tracheostomies, and other "complex" patients or patients "on the radar". Charge nurses collectively used these tracking systems to ensure that these patients were distributed between staff nurses' assignments in a way that facilitated achieving their goals.

One charge nurse explains that they track patients on isolation because they "try not to give three [patients on] contact isolation to a [staff] nurse." (R9-5) One charge nurse describes how they "try to split up the trachs [and] split up the discharges" between patient assignments (R9-1). A third charge nurse on the same unit describes how the acuity scale they use allows them "to split up the heaviest patients, the trachs, and the discharges evenly, and then [try] to even out the acuity score from there." (R9-2)

A charge nurse on another unit describes how, when they are making the nurse-patient assignment, they "split the acuity…[they] know what patients are heavy, so [they] separate [those] patients to different nurses." (R6-2) A charge nurse on another unit similarly describes how they will "circle the room numbers for patients that are considered highly acute, like 'complete', that need help with like everything, [and they will] try to split them up so that each [staff nurse] has one." (F12-2) This identifies how charge nurses on each unit use strategies to identify specific patients as a means of distributing them in a way to achieve their goals.

Synthesis of Information Summary.

These four examples provide insight into shared ways in which charge nurses synthesize information they collect to inform the development of the nurse-patient assignment. These included aims of: continuity of care, one-to-one nurse report, distributing discharges and targeted patient distribution. These examples of charge nurses' synthesis of information represent one of the four shared elements of assignment making. The other three include: the utilization of tools, a goal-oriented approach and assignment drafting.

Utilization of Tools.

Another similarity with respect to the development of the nurse-patient assignment among charge nurses between units was the use of tools. These tools included unit-driven frameworks and organizational systems. Each of these tools facilitated the identification and tracking of specific information to inform the development of the nurse-patient assignment.

Unit-Driven Frameworks.

Charge nurses from all the units identified specific organizational frameworks or unit-based cultural practices around the identification and collection of specific information. These came in the form of scales or the identification of specific types of patients with the aid of specified terminology. The unit-driven approaches have already been described and the nature of the terminology will be discussed in more detail in the Factor Terminology section. This section will discuss how these unit-driven approaches represent a commonality between units with respect to "making the assignment".

One charge nurse identified having "a core charge group [on their unit]" which consists of a group of charge nurses who "meet quarterly and discuss issues, problems" facing the unit including how to improve the development of the nurse-patient assignment. They develop plans and "make sure that every day or every shift, a core charge [nurse] is assigned" as a means of maintaining "consistency with [their] goals" regarding the development of the nurse-patient assignment. (R6-1) Another charge nurse on this unit described how at these "Core Charge meetings [they] try to develop tools to help out" with the development of the nurse-patient assignment. (R6-3)

A charge nurse on the other unit with a patient ranking scale described a similar development of their system where their "clinical specialist [did] research on the acuity model, and presented [it] to us [and] we discussed whether we thought that would work, and based it on the one, two, three system." (R9-3) Another charge nurse on this unit described that they "have been using that model for over a year now and it's really helped a lot." (R9-4) This charge nurse describes how they "based [their unit's acuity] model as much as possible on evidence and then [they] trained all of the charge nurses on it when [they] started the core charge nurse model." She states:

> I think I'm more than prepared to make a patient assignment than before we did any of that. I feel like I put a lot more thought into it now too, my thought process has changed. Now that I've been given these other tools. (R9-4)

One charge nurse on a third unit described how they had a "charge nurse retreat with all the charge nurses on the unit where [they] talked about, the assignments and basically came up with the priorities for making the assignment." (F12-5) Finally, a charge nurse representative from the last unit described similar cooperative consensus-driven work around the development of an approach to the making the nurse-patient assignment. They describe that the

> …goal of the [charge nurse] retreat [was] to come to a consensus [because] there was some sentiment among the staff that, some charge nurses made really poor assignment choices … [and they've] seen plenty of assignments from other charge nurses that don't seem to take [certain strategies] into consideration. (F14-3)

These descriptions identify how each of the units made coordinated efforts to develop frameworks from which to guide the development of the nurse-patient assignment. What is demonstrated here is the shared organizational efforts of these units

to develop a means of characterizing and capturing valuable information to inform their synthesis process to make a nurse-patient assignment that achieves their goals.

Organizational Aids.

Charge nurses on the units also identified the use of organizational tools to help them develop the nurse-patient assignment. These included scratch paper, grids, report sheets and the computer. One nurse describes how the use of grids helps them make the nurse-patient assignment. They stated:

> I had a hard time making the assignment until, randomly, one nurse made that grid for me…I use about four of those grids, when I'm making the assignment, to cross off and make sure I assigned everybody and, like, circle the completes or whatever. (F14-3)

Another charge nurse on this unit mentioned the use of a grid in a different context facilitating their organization of staffing based on their unit's patient census. They identified that they "have like a grid that we're supposed to go by like on the number of patients, so how many nurses, [and] how many CNAs we can have." (F14-3)

A charge nurse on another unit described the use of a grid to organize the making of their nurse-patient assignment in a different way.

> I'll just go through the list and write down the names and the room assignments of people that were there the night before, and start with them. And we have a grid that just lists each room, and some people use that. I think it's helpful [because] you can cross out the rooms that you've already assigned as you're like writing them down next to people's names. So I'll just write down the ones that [were] there the night before then I'll start filling them in and I'll try, and just keep people's [assignments] together. (F12-2)

Another charge nurse identifies using scratch paper and how they refer to the schedule to identify who is working the next shift, identifying on that list who is the

charge nurse and then "on the scratch paper [they'll] put [the] charge nurse first and then list [the staff nurses] under on that list." (R9-5)

One final charge nurse on a different unit described how they use the computer to help build their nurse-patient assignment. It allows them to input and swap out names through their shift as they construct and re-construct their nurse-patient assignment as dynamics warrant. They describe, "I start getting in the computer and working on this sheet here and just playing with the names and the acuity from the report I [received]." (R6-3)

These serve to identify insight into the common practice of charge nurses utilizing tools to help track and organize information for the development of the nurse-patient assignment. These tools include different means of helping charge nurses both with their process both conceptually with the unit-driven frameworks described and functionally with other organizational aids. This represents another shared element of the assignment making process among charge nurses within and between units.

Goal-oriented Development.

All the charge nurses not only described the development of the nurse-patient assignment as geared towards accomplishing a specific goal or goals but the goals they identify revolved around the patient, the nurse or the nurse and the patient. Similarly, all their goals revolved around the dimensions of safety, fairness and satisfaction. The most common consideration of both nurses and patients was expressed by one charge nurse who explained, in the context of their synthesis of factors, that

> …you have to look at the nurse as well as the patient in order to do the assignment because you need to make sure that nurse fits with that patient. So you

> have to take both of them into consideration when you do the assignment, not just the needs of the patient, …you need them both. (F12-1)

A charge nurse on another unit, when discussing their rationalization of their goals of patient and nurse safety, stated:

> Patient safety really relates to nurse safety, too, because we're the one taking care of [the patients], so if anything goes wrong, [if] that nurse missed or couldn't get to [something], she will be pushing herself… So [they are] linked together (R6-2)

The charge nurses described how their orientation and negotiation of factors when developing the nurse-patient assignment are geared towards accomplishing specific goals. This shared goal-oriented approach also commonly revolved around the stakeholders of nurses and patients. Furthermore, they focused on domains of safety, fairness and satisfaction. What is meant to be illustrated by this section is the shared goal-oriented approach of charge nurses to the development of the nurse-patient assignment and their shared stakeholders and goal types as it relates to "making the assignment". The nature of the goals and charge nurses' synthesis of them will be discussed in more detail later.

Assignment Drafting.

Charge nurses describe the iterative development of the nurse-patient assignment throughout the shift. Charge nurses generally start with a draft or more rudimentary outline which is then refined throughout the shift as they gather information and adjust to accommodate evolving dynamics. One charge nurse states: "I usually make an assignment around, midnight or so, kind of like a preemptive one. You know, barring any call-outs or drastic changes in staffing." (F12-5) A charge nurse on another unit reiterates how, early in their shift,

> After the updates, I will see who's back tomorrow [and] I will write down their assignments and I'll just leave it at that…and then I'll play around with them at the end [of the shift]. (R9-1)

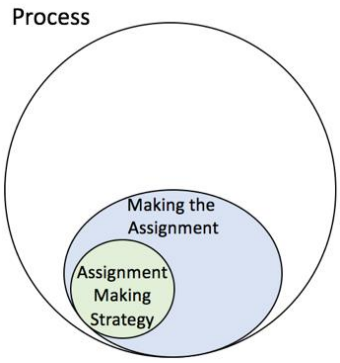
This iterative assignment development that reflected evolving unit dynamics was described by one charge nurse.

> Just this weekend I remade the assignment four times in the morning because things kept changing. We had call-outs, so we were really short. Then the coordinators gave me two staffing nurses so I had an assignment for [that and] the really short list got thrown out…And then [the coordinators] called back and took one of those nurses away, so I had to remake the assignment with, now, eight nurses, and then at 7:00, right as we were changing [shifts and giving] report, she called me back and said, "Oh, you can have that other nurse back." So I had to dig that other assignment out of the trash and put it back up. (F12-5)

The charge nurse identified this as an outlier, however, all the charge nurses described how their assignment making generally took place over the course of the shift in different pieces with a concentrated amount of time dedicated at the end. This represents a common element with respect to the practical construction and timeframe development of the nurse-patient assignment.

Making the Assignment Summary.

The purpose of this section is to provide insight into charge nurses' shared approaches to making the nurse-patient assignment. This section demonstrates similarities in charge nurses' approach regarding their synthesis of information, utilization of tools, goal-oriented orientation and assignment drafting related to making the nurse-patient assignment. The next section will identify elements of variation with respect to these aspects of "making the assignment" when charge nurses' strategies are analyzed on a more granular level.



Assignment Making Strategy.

"…it's a puzzle, it doesn't always work for the other person. Their strategy is different." (F12-3)

Despite the similarities with respect to making the assignment, components of the process varied for charge nurses. This section will discuss this variation within the context of the sub-theme Assignment Making Strategy. More specifically, variation in charge nurse strategy will be discussed as it relates to the synthesis of information, utilization of tools, goal-oriented assignment development and assignment drafting.

Synthesis of Information 'Strategic Variation'.

Charge nurses across units share ways in which they synthesize information. These common practices were outlined in "making the assignment". Charge nurse descriptions did, however, identify variation. Charge nurses discussed this variation broadly in different contexts. One charge nurse described how "every charge nurse has their own like magic making the assignment" (F14-3) and another stated how they "bring [their] own beliefs to [making]…the assignment" (R6-3). As one charge nurse described, each charge nurse has "their way" of developing the nurse-patient assignment. (F12-3) That is, all the charge nurses described how they approached the development of the nurse-patient assignment in ways that demonstrated unique differences. These will be discussed in the context of the unit-driven frameworks and charge nurses' individual conceptual approaches to making the nurse-patient assignment.

Charge Nurse Conceptual Framework Variation.

One charge nurse provided insight into why they believed approaches vary. It was presented in the context of another charge nurse training them to develop the nurse-patient assignment. This charge nurse described how if you're

> …there for three days with another charge nurse, they'll, kind of tell you their way, but their way—[because] it's a puzzle, it doesn't always work for the other person. Their… strategy is different. I had a hard time making the assignment until, randomly, one nurse made that grid for me…I use about four of those grids, when I'm making the assignment, to cross off and make sure I assigned everybody and, like, circle the completes or whatever. So that was actually helpful. (F12-3)

This charge nurse identified the necessity of varying conceptual approaches to solving the "puzzle" that is the nurse-patient assignment and how strategies are different. Another charge nurse on the same unit said "I think it's just practice…you [have to] find your way that's best for you to do it." (F14-1) A charge nurse from a different unit similarly spoke to the variation in approach to the making of the nurse-patient assignment within the context of their preparation. They described how they

> …had two nights of orientation [which were] basically just learning on the job. Seeing what the other senior charge nurses were doing, and basically, you know, practice and trying to maybe see now, okay, maybe I'll do this differently [because] I know when this is done, certainly I don't like it. So… I did my own—you know; I bring my own beliefs to… the assignment. Like I said with the fairness and the acuity. (R6-3)

Another charge nurse described it as "fitting into your own groove." (R6-4) These sentiments of variation and individuality with respect to the approach are echoed by charge nurses within and between units. They manifested in the way in which charge nurses approached the assignment, what strategies they used and how they considered factors. These elements of variation will be discussed in the contexts of whether charge nurses adopt a prioritized approach to the development of the nurse-patient assignment and how they uniquely consider specific factors.

Prioritization.

The conceptual approaches of charge nurses with respect to how they develop the nurse-patient assignment vary. This includes the strategies they use to make or guide decisions. One example of strategic variation within charge nurses' conceptual approaches to the development of the nurse-patient assignment relates to whether and how charge nurses prioritize factors. A charge nurse from one unit described,

> When making the assignment. I don't say I prioritized them as much. I just kind of know in my head because I've been there so long and I know everyone. There's really no priority to it. It's just you sit down and you do it. You know what's too much and what's not. You just [kind of] know, so there's really no priority to it. (F12-1)

This approach described as one without an explicit prioritization framework was reiterated by another charge nurse on a different unit. They similarly described that they

> …kind of look at them altogether— not necessarily put one in front of the other. I can't say, well, my priority is—I don't really have a priority. I kind of look at them all, and they all have—they all have importance in my brain…for different reasons. You have to look at the whole picture. I don't necessarily look at one piece versus another…it's very rare that I would do that. I kind of look at the whole—that's just how my brain works…So I might give you, you know, two hard ones and two easy ones, or I might give you three easy ones and one really, really hard one. You know what I mean? Or I give you three easy ones and one very complex family that…I know you're [going to] spend your time in that family room, and the patient doesn't need a lot. But they just are very draining and they're just a very needy family…so it depends on…your viewpoint. (R6-5)

These viewpoints were in contrast, however, to most charge nurses that described at least some integration of prioritization into their assignment making strategy. Some charge nurses similarly approached making the nurse-patient assignment from a broad perspective describing that they "look at the whole situation" when making decisions; however, ultimately, they articulated that balancing clinical acuity was "going to be the priority." (R9-5) They described how they were more concerned with patient's clinical or

medical stability than whether they were incontinent and how non-clinical or non-acuity related factors would be "the last priority… [for example,] those who are incontinent." (R9-5)

Another charge nurse described how assigning who they believe would be a more appropriate staff nurse to care for a specific patient would be a priority over other considerations. The charge nurse describes their prioritization when making nurse allocation decision to a section of their unit with a specific patient population.

> If I have a heavy patient or someone difficult, I do put in an experienced [staff nurse], regardless [of who's] turn [it is] because the younger ones can't handle that, the heavy or the intense. So that's [going to] take priority versus the, you know, turns. (R6-2)

One charge nurse described a "layered" ordinal approach guided by their prioritization of factors. They state:

> I would put down whatever nurses are returning, so continuity is the first layer, continuity of care. I think the next layer really goes into matching nurses to nurses that are already here (one-to-one report) while also taking into consideration geography (proximity of rooms). So…geography and nurse matching is the next layer. Then I make sure that I have all the patients down. So they're at least down on the paper, and that's when I do acuity. So I score them all out based on the acuity of the patients. And if they're uneven that's when I start to make switches. But when I make my switches I also take geography into account. Then once that is all done and acuity is all matching, then I take a look… [at] personality matching and that [is]… of least importance, that's kind of like the tip of the pyramid. You know what I mean, like the final layer. So that's kind of how the process goes. (R9-4)

This description not only provides insight into their thought process but that some factors are more important than others. Charge nurses on the fourth unit similarly describe prioritization as part of their strategy. One charge nurse describes how "The priority is keeping the assignment balanced [and] if I have to give somebody to four different nurses [that's] the least of my priorities." (F14-1) Another charge nurse on this

unit described how acuity is "always [a] high priority" and how the location of patient rooms "takes the least priority sometimes." (F14-2)

These examples provide insight into some of the variation with respect to charge nurses' strategies when developing the nurse-patient assignment. Some charge nurses provide descriptions of conceptual frameworks with more steps, elements and more explicit prioritization and other charge nurses incorporate less prioritization, and fewer steps and factors.

Randomness and Blinding as Strategy.

A discussion of how charge nurses use randomness and blinding to develop the nurse-patient assignment illustrates further variation with respect to how charge nurses' approach the development of the nurse-patient assignment. One charge nurse described that, after considering certain prioritized factors, they approached the distribution of patients in somewhat of a random way. They described: "We try to spread those out, but any other patients are just kind of more or less randomly divvied up." (F12-5) In another context this charge nurse strategically implemented randomness as a mechanism to decrease bias. They described that they "make the assignment without nurse names attached to it" and then they "break up the patients into [groups] and then [they] usually just randomly throw the nurse names in—wherever it falls." (F12-5)

Charge nurses describe how strategies such as these may help maintain fairness and mitigate favoritism or bias more broadly. They discuss charge nurse blinding of staff nurse names when developing the nurse-patient assignment and how this is a beneficial element of their acuity model in that

> …there are no names at the top. The bottom line is [that] this assignment is a seven. This assignment is an eight. This assignment is a seven. This assignment is an eight. The acuity is pretty much the same for all the levels of nurses that are coming in. (R9-4)

This charge nurse described how certain strategies such as these can be employed to make the development of the nurse-patient assignment more fair. They described when charge nurses deviate from practices such as these a staff nurse

> …would feel like she's not being treated fairly or as if there's favoritism towards another nurse. I think everyone just wants to be like on the same playing field and [wants to] feel supported (F14-3)

Strategies such as these were identified as valuable because of the presence of favoritism and bias. Two nurses spoke to these dynamics. One stated:

> I've definitely been guilty of favoritism, too. Like, I've made an assignment before and then, saw one of my friends had, like, a patient that I knew was really difficult, and I was, like, "Oh, I'll be nice to her today and move her to a different [assignment]." (F12-5)

Similarly, a charge nurse on another unit described how their friends might influence their development of the nurse-patient assignment. They state:

> …this is kind of my little bias—but sometimes for my friends, I might, every once in awhile, if my friend's on day shift with me, and there's, like, a couple good nurses that are always here, ready to go at 7:00 p.m., they might come up to me and be like, "Oh, can I give report to this person … And sometimes I do do that. (F12-3)

Most charge nurses did not describe a random or blinded approach. What was more common was a prioritization of different factors relating to the development of the nurse-patient assignment. One charge nurse described the integration of randomness within certain bounds. They described how there are

> …different ways you can [make the assignment]. I mean as I said, people returning get their whole assignment back regardless… well, most of it. But the new [staff nurses], the [staff nurses] who are coming in fresh, they're kind of just

> up in the air. You can technically just throw a deck of cards down and just scatter them…if an off-going nurse has four patients, I'll keep that assignment together and give it to somebody who I think is appropriate as long as that off-going nurse thought their assignment was appropriate…if you're more worried…you can sit and play with them. (F14-1)

Overall, most charge nurses described an intentional approach with elements of prioritization integrated in to the development of the nurse-patient assignment. There were other charge nurses, however, that integrated randomness or blinding into their nurse-patient assignment development strategies. These approaches represent elements of variation between charge nurses with respect to the development of the nurse-patient assignment.

Factor Synthesis.

Charge nurses' consideration of factors varies when developing the nurse-patient assignment. This variation is evidenced through charge nurses' descriptions of their insight into the nature or dynamics of certain factors and the way they integrate those factors into their nurse-patient assignment development strategy. This variation was evident as it related to the consideration of: the proximity of patient rooms from one another in each staff nurse's patient assignment, nurse manager preferences and staff nurse personality, preference, experience and whether a staff nurse was pregnant. The nature of this variation will be detailed later, however, it is appropriate to identify in the context of variation with respect to charge nurses' synthesis of factors.

Utilization of Tools.

Charge nurses on each of their units implemented tools to facilitate the development of the nurse-patient assignment. These were identified and described previously within the shared elements of "making the assignment": unit-driven

frameworks and utilization of tools. Charge nurses' descriptions, however, also identified variation that influenced the development of the nurse-patient assignment.

Unit-Driven Framework Variation.

Each unit has an established framework and common terminology that they use to guide their process of the development of the nurse-patient assignment. These frameworks and some of the unit infrastructure behind their development has been described. Despite the similarities with respect to these unit-driven organizational efforts, there are differences between these approaches that influence how charge nurses both between and within units develop the nurse-patient assignment.

One difference between the frameworks was that charge nurses on one of the units reported the integration of evidence-based literature into the development of their unit-driven framework. The other three units did not identify any evidence-based literature integrated into their preparation for the role or for their unit-driven approach.

In addition, these frameworks serve to identify and track different factors: patient acuity on a 1-3 scale, a subjective relative ranking of patients on a 1-3 scale, and patients with tracheostomies or patients identified as "complex" or "completes". Two of the units use three point scales, one uses what is essentially a binary scale and the fourth unit does not have a scale. The varying nature of these frameworks influences the development of charge nurses' nurse-patient assignments.

In addition, even charge nurses within units describe the use of the same terminology associated with these frameworks differently. One example of this was the charge nurse on the unit that referred to patients as "semi-completes". No other charge nurse on this or any unit described integrating this term into their synthesis of factors.

The variation with respect to the utilization of specific terminology such as this and how they are defined will be discussed further later. This reference here serves to illustrate how these frameworks can be adapted or used differently by charge nurses even within units.

Charge nurses on the unit with the acuity scale identified that they did not have a scale or checklist to determine or evaluate acuity. It is "completely [a] judgment call." (R9-1) This charge nurse described how patient acuity is assigned using their acuity model:

> It's kind of just a judgment call. I don't know, we could have a trach that's a three, that's very needy, very anxious, has a lot going on, but then we also have trachs that are twos. I've even had a trach that's a one because he completely self-suctioned, did everything himself. (R9-1)

This element of judgment or subjectivity, even within the context of these more well defined scales was common among all the units. A charge nurse on another unit, for example, describes how "different things go into those numbers and it's subjective…every [staff] nurse [kind of] can rate it how they want." (F14-3) Furthermore, the shared terminology associated with each of these approaches was used differently between charge nurses within and between units which will be discussed in more detail later.

These frameworks are also described as being integrated into the development of the assignment differently. The unit that uses the acuity scale described it as more central to their process as compared to charge nurses' implementation of their unit-driven frameworks on other units. One charge nurse on this unit states:

> We really do base the patient assignments off of the acuity of the patients. I'll do acuity at the end … I score them all out based on the acuity of the patients. And if they're uneven that's when I start to make switches. (R9-4)

Another charge nurse on the same unit reiterates by stating:

> Acuity is a primary thing…the [aim is] to give nurses similar acuity scores. So that…acuity scores are equal. I've been to other floors that really stick to like oh, you have those two rooms, like they're next [to each other], we don't [consider proximity of rooms]. Ours is all acuity. (R9-1)

Charge nurses on other units, though they integrate their frameworks into the development of their assignments, describe an approach less focused on achieving such a specific aim. A charge nurse described how they "…keep track of patients that we call completes, and … we try to spread those out, but any other patients are just kind of more or less randomly divvied up." (F12-5)

Overall, what the comparison of these models identifies is that, although there are similarities with respect to the development and implementation of unit-driven frameworks to facilitate the development of the nurse-patient assignment on every unit, each of these frameworks is different and is implemented differently by charge nurses within units. This represents another element of strategic variation with respect to charge nurses making the assignment.

Organizational Aids.

Charge nurses across units reported utilizing different organizational aids to develop the nurse-patient assignment. These included scratch paper, grids, report sheets and the computer. Not all charge nurses, however, reported using aids and of the charge nurses that reported using them there was variation among what they used and how they were used. One charge nurse stated,

> I just think the way [charge nurses] actually like physically go about [making the assignment], I [for example] copy and paste it all on to one side and like individually go through, someone else probably has their own way of doing it. (F14-3)

Similarly, in reference to the use of the grid another charge nurse identifies that "some people use that. Not everybody." (F12-2) This identifies how mechanical strategies for the development of the nurse-patient assignment vary between charge nurses as well. Further variation into the use of aids will be illustrated in the assignment drafting section. This serves to illustrate variation between charge nurses with respect to the tools they use to develop the nurse-patient assignment.

Goal-Oriented Development Strategy.

Charge nurses all have goal-oriented assignment development approaches. These goal-oriented approaches all revolve around nurses, patients or nurses and patients. These considerations also relate safety, satisfaction or fairness. Variation does exist with respect to what goals each charge nurse considers, how they define these goals, the number of goals they consider and how they prioritize these goals in relation to one another. These dynamics will be discussed in more detail in the following sections; however, it is relevant to note that, despite the similarities related to charge nurses' goals when developing the nurse-patient assignment, there is substantive variation with respect to the mechanics of their integration into the development of the nurse-patient assignment. This is relevant to identify in the context of variation with respect to charge nurses' synthesis of factors when making the nurse-patient assignment.

Assignment Drafting Variation.

Charge nurse descriptions of their process identified shared elements with respect to how they constructed their assignment. As described, it involves elements of development, refinement and adaptation that initiate towards the beginning of the shift and finalize within the last hour or two of the shift. Similarly, charge nurses all acknowledged that there could be significant variation in the amount of time spent making the assignment depending upon unit dynamics. Within these described nurse-patient assignment development patterns, charge nurses described variation. This variation related to the amount of time and approach to the development of the nurse-patient assignment.

Several charge nurses stated that it only would take them fifteen to twenty minutes once all of the information was gathered. The majority of charge nurses identified that it would take them between 30 and 45 minutes. There were several charge nurses, however, that described allocating more time. One charge nurse states:

> I would say at least like, piece it up, maybe, like, an hour and a half actually thinking about the assignment in pieces. Absolutely. You think about it a lot. You go back and forth— making sure you've assigned every patient over and over again. (F12-3)

A charge nurse on another unit described how "if all the same nurses are back, it's really easy to make it. I would say probably like an hour." (R9-2) A charge nurse from a final unit similarly described how "depending on the day, it could be as little as maybe 20 minutes or as long as maybe an hour-and-a-half, two hours." (F14-1)

Charge nurses' descriptions attributed some of this variation to how charge nurses approached the development of the nurse-patient assignment. This was communicated by one charge nurse who described how the assignment "is [going to] determine how eight

people's night [is going to] go for the next 12 hours…so I really do put a lot of thought into it, and I think that a lot of people don't understand that." (R6-4) This charge nurse described their range of time relating to the development of the assignment as, "best case scenario probably, at the most, shouldn't take like longer than, if you really think about it, an hour, [but that] worst case scenario, I've changed it all day long."

Another charge nurse illustrated this contrast stating, "I notice some of my peers can just go boom, boom, boom and whatever they put there, they're good with that, that's it. This is it. This is nursing." (R6-3) Similarly, a charge nurse described that other charge nurses would explain what "their thought process was for making a patient assignment…and a lot of the times it really wouldn't be much." (R6-4) This sentiment was reiterated across units with charge nurses describing inconsistencies, problems with charge nurses making "really poor assignment choices" and deviations from unit-driven frameworks and established priorities (F14-3).

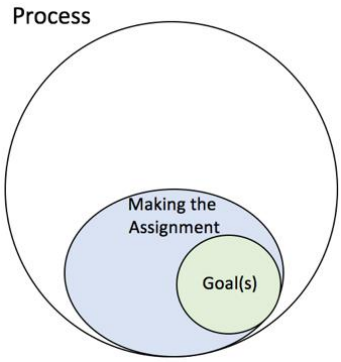
These examples provide insight into some of the variation associated with nurse-patient assignment drafting patterns. Some charge nurses approach the development of the nurse-patient assignment differently and others report taking anywhere from fifteen minutes to upwards of two hours to develop the nurse-patient assignment. This represents another element of variation with respect to the development of the nurse-patient assignment.

Assignment Making Strategy Summary.

Charge nurses describe variation with respect to the development of the nurse-patient assignment. This variation was illustrated in the contexts of their synthesis of information, utilization of tools, goal-oriented development and assignment drafting.

These aspects of variation highlight different strategic approaches to how charge nurses conceptually and practically make the nurse-patient assignment. Some charge nurses integrate explicit prioritization strategies while others do not. Some charge nurses utilize randomness and blinding whereas others do not. Similarly, charge nurses consider factors in different ways when developing the nurse-patient assignment, they consider different goals, different numbers of goals and structure the approach to making the assignments differently. The following section will provide more detail with respect to the variation of charge nurses' goals.

Goal(s).



"The goals are to make fair assignments." (R9-2)

Charge nurses were asked to identify their goal or goals when making the nurse-patient assignment. Each charge nurse provided an answer that reflected their unique conception of what they hoped to achieve. Just as the construction of their respective frameworks varies so did their goals.

There were six concepts identified from their identified goal statements. These concepts include: Patient Safety, Patient Satisfaction, Patient Fairness, Nurse Safety, Nurse Satisfaction and Nurse Fairness. There was only one other element identified by one of the charge nurses which was the goal of finishing the development of the assignment on time. (Figure 4)

Figure 4.

Goals When Making The Assignment

Patient Safety	Patient Satisfaction	Patient Fairness
Nurse Safety	Nurse Satisfaction	Nurse Fairness
Finish on Time		

These concepts can be interpreted and contextualized differently, so coding them presented

challenges depending upon how and when they were described during the interviews. For example, one charge nurse identified an aspect of their assignment development process that catered to patient satisfaction. They did not, however, mention patient satisfaction when asked to describe their goal or goals. This section only reflects the concepts mentioned in relation to the response to the specific question about their goal or goals. This facilitated a more direct comparison between charge nurses and also served to differentiate between charge nurses' aims, targets or activities that served to achieve goals.

In cases where the concepts of safety, satisfaction and fairness were mentioned in a context that was directly associated with the patient or staff nurse, it was coded and identified as such. An example of this would be a nurse who prioritized fairness for staff nurses as their singular priority when making the assignment by describing "the goals are to make fair assignments. Because you don't [want to] give [nurses], you know, three trachs…because, those are heavier patients. So that's our goal with using the acuity model. And I think that the nurses value that more than having all the same rooms in a row." (R9-2) Similarly, another nurse singularly identified patient safety as their chief priority describing that their goal was to ensure "the patients are safe, that the provider that's caring for them is able to care for them." (R6-5)

Another charge nurse described how "my goal is I want to make it easy for everyone. I want them to have a good shift. not stressed out. And, and also safe for my patients and I want them also to be satisfied with their care that they were receiving." (R9-5) Another nurse similarly identified multiple priorities communicating "I think the biggest goal is ensuring that it's safe, safety…so safety is kind of the number one focus. Patient satisfaction, nurse satisfaction, I think. And I don't know [how] to describe, but just making sure that it's a—it's a smooth shift…you're not [going to] ensure an easy shift for anybody, but that, you know, things are even keeled." (R9-4)

Figure 5.

Goals When Making The Assignment

Patient Safety 14	Patient Satisfaction 4	Patient Fairness 6	24
Nurse Safety 5	Nurse Satisfaction 5	Nurse Fairness 12	22
19	9	18	

Patient Safety and Nurse Fairness were identified most frequently (14 and 12 respectively) (Figure 4.4). Overall, factors related to the patient were identified more than factors associated with the staff nurses (24 and 22 respectively). Safety among patients and staff nurses were the most identified of the three categories (14 and 5 respectively). Fairness was the second most common (i.e. 6 times in reference to patients and 12 times related to nurses). Satisfaction among patients and nurses was also important (i.e. 9 different circumstances) In summary, the prevailing priorities seem clearly focused around patient safety and staff nurse fairness. These priorities when making the nurse-patient assignment are further reflected by the card sort activity which will be discussed later.

The frequency of goal identification (46) identifies that most charge nurses considered more than one of these goals in their goal statement. None of the charge nurses reflected all six of the goals, although, two of them identified five. Two charge

nurses identified four goals, five charge nurses considered three, and five charge nurses considered two. Finally, four charge nurses identified only one. An average of these indicates that most charge nurses considered two or three. (Table 2)

Table 2.
Number of Goals Considered by Charge Nurses

Number of Goals	Number of Charge Nurses
1	4
2	5
3	5
4	2
5	2
Average = 2.6	Total 18

Beyond how frequently they are mentioned, it is important to note the complexity of these concepts. Concepts such as safety, satisfaction and fairness may be defined differently among charge nurses. Even if they are defined in the same manner they may be considered differently in practice or in relation to one another. A reference to this complexity serves to provide insight into the challenge of both constructing the nurse-patient assignment and more fully understanding how charge nurses construct the nurse-patient assignment.

One example of this challenge related to the interpretation of certain statements describing fairness. One nurse stated that their goal was "to give nurses similar acuity scores"…"so that no one is stuck with like 4 out of 5 discharges, something like that" … "so that discharges aren't unequal and acuity scores are equal." (R9-1) The assumption made regarding this statement, reflecting that the charge nurse was striving to distribute acuity and discharges among nurses in an equal manner, was that the charge nurse equated equal distribution as a strategy of fairness to staff nurses. This was a sentiment

that was directly identified by nurses as a means of establishing fairness in other contexts. It is possible, however, to alternatively interpret this as an attempt to ensure patient safety. Moreover, it is possible that these concepts, in this context, for this charge nurse or others, are inextricably linked. Descriptions identify that conceptualizations of fairness with respect to the development of the assignment vary. One charge nurse stated:

> A lot of people think, having more than one trach could be unfair. I don't necessarily think that. It could be easier. fair—I think a lot of times fair—I think of more basic things, like toileting, feeding someone. And I also want to divvy out, the "needy patients," quote/unquote, the ones that are always on the call bell, that are, emotionally draining, too, not just their physical demands. But that's kind of what I think for making a fair assignment, really. (F12-3)

In later sections, the nature of the complexity of terminology and variation in consideration of specific factors related to the development of the nurse-patient assignment will be discussed in more detail. Nevertheless, these descriptions identify different perspectives among charge nurses related to the goal when making the nurse-patient assignment. This variation is expressed in both the number of goals expressed, how these goals are described, and how they are thought of in relation to one another.

Summary of Process

This section detailed the themes identified in the process of making the nurse-patient assignment. Each of the charge nurses on all the units articulated their approach to the development of the nurse-patient assignment in terms of Information Gathering and Making the Assignment and highlight the gathering of information and the synthesis of that information in a manner to develop the nurse-patient assignment.

The interviews also revealed variation among charge nurses with respect to how they sourced their information and the information they sourced. Similarly, despite all

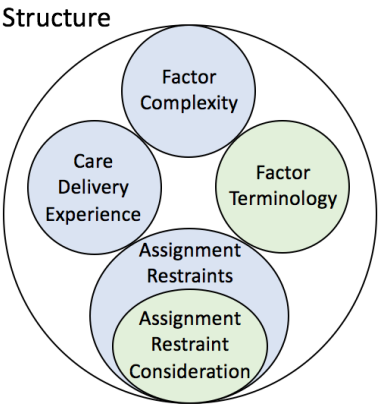
charge nurses applying a given conceptual approach to the development of the nurse-patient assignment it was evident that their approaches differed. Some of these differences include how information was considered which may be informed by the ultimate goal or goals charge nurses pursue when making the nurse-patient assignment. The interviews revealed six goals of safety, fairness and satisfaction as they relate to the staff nurse and patient.

These findings highlight that charge nurses value and intentionally collect specific information to inform the development of the nurse-patient assignment. Charge nurses articulate individualized approaches where they consider this information to develop a nurse-patient assignment that aligns with their goals. Their description of their goals identifies the underlying complexity with respect to the number and nature of their goals and how they considered factors related to negotiating the development of the assignment. Overall, charge nurses described the goals of safety, fairness and satisfaction and how factors were considered to develop the nurse patient assignment to maintain those goals.

An understanding of the process facilitates the broader goal of contextualizing the experience of charge nurses developing the nurse-patient assignment and better understanding their decision making. It also serves as a foundation from which to understand the other elements of the conceptual framework, Structure and Prioritization. The following sections of Structure and Prioritization will provide a more insight into development of the nurse-patient assignment.

Aim 2-a: Identify what factors charge nurses find to be the most and least important

Structure



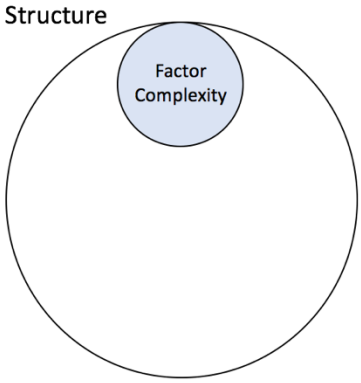
The term Structure refers to the material resources, human resources and organizational characteristics of a health system. Structure captures the next focal point of the investigation which was to gain insight into what factors charge nurses consider when developing the nurse-patient assignment. The nature of these factors and how charge nurses consider them to develop the nurse-patient assignment was of specific interest.

The semi-structured interview guide was designed to solicit descriptions from charge nurses about what factors they considered and how they considered them when making the nurse-patient assignment. Themes and sub-themes were identified. The theme of Factor Complexity occurred which identifies the number and diversity of factors that charge nurses consider when developing the nurse-patient assignment. Care Delivery Experience occurred and identifies how the factors that charge nurses collect provide them with insight into the experience of staff nurses' delivery of patient care. The theme of Assignment Restraints also occurred. Assignment Restraints identifies the influence of each medical-surgical units' budget and nurse manager on how charge nurses develop the nurse-patient assignment.

Sub-themes also occurred. The sub-theme of Factor Terminology identifies how charge nurses use the same terminology in different ways as it relates to the development of the nurse-patient assignment. In addition, the sub-theme of Assignment Restraint Consideration occurred within Assignment Restraints. Assignment Restraint Consideration identifies how charge nurses synthesize considerations of their unit's

budget and nurse managers' influence differently. This section will outline the factors charge nurses reported considering and describe each of the themes and sub-themes.

Factor Complexity.



"I split the acuity … [then] the second step is [location] … third, I am looking [at] isolations…the other factor is … trying to divvy up the ones that [are] emotionally draining, …what else? … certain nurses like surgical patient [so] I try to give [them] what they want. [Considering] all the assignment factors can be stress[full]." (R6-2)

Charge nurses illustrate the complexity of developing the nurse-patient assignment by describing the factors they consider. Charge nurses consider numerous and diverse factors. Mostly in vivo codes were used to identify these factors. These factors were divided into **groups**. These groups include: **Patient**, **Nurse**, **Environment**, **Ratio**, **Nurse Manager Role, Family**, and **Other**. These groups were then broken down in to *categories* to discuss the factors at the level of specificity that charge nurses discussed them when developing the nurse-patient assignment. Collectively these factors illustrate the theme of Factor Complexity with respect to their number, nature, interaction and consideration.

Patient Factors.

All the charge nurses considered patient factors. The group of **patient factors** was broken down into six *categories*. The six categories included: *Proxy Descriptors*, *Dynamics, Tasks, Diagnosis/Procedure*, *Characteristics* and *Time*.

The first category, *Proxy Descriptors*, refers to ways in which patients were characterized by charge nurses. These characterizations served as representative terminology, or proxies, for the nature of care each patient would require. These Proxy

Descriptors included terms like ‘acute’, ‘heavy’, ‘complete’, ‘labor intensive’, ‘independent’ and ‘confused’. The second category, *Dynamics*, refers to aspects related to patient care such as there being ‘satisfaction issues’ or that they have a ‘wound’, or they are on ‘one-to-one’ observation. The third category, *Tasks*, refers to a specific responsibility related to the care of patients such as ‘feeding’, ‘toileting’, ‘suctioning’ and ‘blood transfusions’. The fourth category, *Diagnosis/Procedure*, refers to ways in which patients were classified such as ‘CF patient’, ‘liver patient’, ‘oncology’, and ‘fresh tracheostomy’. The fifth category, *Characteristics*, refers to factors related to identity including ‘culture’, ‘language’, ‘preferences’ or whether they are a ‘VIP patient’. The final category of *Time* was identified separately because it was mentioned by charge nurses as distinct from any other category in numerous circumstances.

The presentation and categorization of the factors in this fashion serve two aims. First, they highlight the variation in types of information charge nurses exchange about patients and how they serve to inform the nature of care that patients require which they use to inform the development of the nurse-patient assignment. Second, they demonstrate the nature of the terminology used to describe patient factors. The organization and presentation of the factors in this manner facilitates the discussion of the theme of Care Delivery Experience and the theme of Factor Terminology.

Staff Nurse Factors.

Factors related to the nurses were mentioned by all of the charge nurses. The group of **staff nurse factors** was broken down into categories corresponding to the context in which they were discussed. They include: *Experience*, *Preference*, *Personality*,

Pregnant, *Culture*, *Development*, *Familiarity with Unit*, S*kills*, *Precepting*, *Perception* and *Teamwork*.

Staff nurse *Experience* was discussed in the context of making safe nurse-patient assignments. Staff nurse *Personality* was mentioned by charge nurses in consideration of the temperament of the nurses. Staff nurse *Skills* were in relation to their knowledge of nurses with specific aptitudes or proclivities towards patient education and related to specific tasks such as performing peritoneal dialysis. Staff nurse *Preference* included the consideration of staff nurse preferences related to catering the design of the assignment to specific nurses. Staff nurse *Culture* was considered related to attempts to align staff nurses with patients of the same cultures. Charge nurses mentioned considering whether a nurse was *Pregnant* when designing their assignment with respect to staff nurse safety. Staff nurse *Development* was discussed in the context of less experienced nurses obtaining new skill sets. Staff nurse '*Precepting'* was mentioned in reference to the design of an assignment for a staff nurse that was being oriented or mentored by another staff nurse. Staff nurse *Familiarity with Unit* was discussed in the context of staff nurses floated from other units. Finally, staff nurse *Teamwork* was mentioned in the context of the dynamics with which staff nurses both in general and in particular work together.

Environment Factors.

Environmental factors were identified by their reference to physical aspects of the unit. Charge nurse references were divided into categories: *Proximity*, *Unique Unit Section*, *Renovations*, *Nurse Station*, *Double Rooms*, and *Empty Beds*.

Proximity was referenced in with respect to the distance of the patient rooms from one another. *Unique Unit Section* refers to two of the units having a selection of beds that

were designated for certain types of patients. Patients in these sections were deemed to have a higher acuity and would generally have staff nurse-to-patient ratios of 1:3 instead of the traditional 1:4 or 1:5 across all of the units. *Double rooms* were discussed in the context of making nurse-patient assignments because there was one computer in these rooms with two patient beds and some perceived it as more convenient to assign both patients in the same room to one staff nurse to avoid potential conflicts between staff nurses accessing the only computer. *Renovations* were an aspect of the environment mentioned in reference to rooms under construction that were not available for patient care. The *Nurses' Station* was referenced in relation to the perception that the rooms in front of the nurses' station would have more acute patients assigned to them. Another charge nurse regarded the nurses' station as the 'dividing line' of the unit which they would use to partition assignments to maintain a relative proximity of rooms within each staff nurses' assignment. Finally, one charge nurse mentioned considering '*Empty Beds'* or vacant patient rooms. They reported considering empty rooms because of the work associated with the potential for a new patient being assigned to an empty room.

Ratio.

Staff nurse-to-patient ratios were identified in the categories: *Day vs. Night Comparison, Unit Location,* and *Assignment Balancing*. A *Day vs. Night Comparison* was mentioned in the context of discussing how the day shift was better staffed than the night shift and thus nurse-to-patient ratios would more often be 1:4 as opposed to during the night shift when they would more likely be 1:5. Charge nurses identified ratios in the context of *Unit Location* referencing unique unit locations. Other charge nurses identified ratios in the context of *Assignment Balancing*. In these circumstances these charge nurses

described considering how to allocate certain patients in ratios of 1:3 or 1:4 as opposed to 1:4 or 1:5 respectively depending upon their assessment of the patients and unit dynamics.

Nurse Manager Role.

Charge nurses perceived the **nurse manager role** as important to nurse-patient assignment development. The categories included: *Perspectives, Budget, Clinical Nursing Assistant (CNA) staffing, Negotiations, Input, Guidelines, and Support*. *Perspectives* were mentioned by a charge nurse who identified circumstances where they would have different strategies than their managers regarding staffing decisions. The *Budget* was mentioned in the context of informing staff nurse and *CNA Staffing* decisions. Administrative *Negotiations* were discussed when making staffing decisions with respect to balancing the nurse-patient assignment. In addition to more general guidelines, the nurse managers were also described as at times providing more specific *Input* about how to design the assignment to accommodate a certain patient. *Guidelines* provided by the nurse manager with respect to how to develop the nurse-patient assignment were described also described by charge nurses. Finally, *Support* that the nurse manager provided the charge nurse was identified as well.

Family.

Charge nurses identified considering the **family** of patients' in several contexts. These included the categories of: *Satisfaction, Family-Staff Coordination, Engagement in Care* and *Needs*.

Other.

Charge nurses mentioned other factors that did not fall with these groups. These factors were identified in the categories: *Physician Assignment Alignment, Change of Shift Report, Nurse Precepting/Orienting, Charge Nurse Assignment, Staff Nurse Feedback, Discharges,* and *Admissions*.

A charge nurse discussed *Physician Assignment Alignment* as an initiative to align the nurse-patient assignments in such a way that patients on specific physician services were distributed to the fewest nurses possible (within ratio bounds) to facilitate physician rounding. *Change of Shift Report* was identified with respect both one-to-one staff nurse exchanges, maintaining continuity of care and considering the relative experience of each staff nurse. It was described how the charge nurse would ensure that at least one of the two staff nurses exchanging report were 'more experienced' especially when the patient they were discussing was "more complex". Nurses *Precepting/orienting* was discussed in the context of allocating specific patients to facilitate staff nurse education. *Charge Nurse Assignment* reflected unit culture with respect to whether the charge nurses are assigned patients for whom they are directly responsible for providing care to during the shift. *Staff nurse feedback* was also described as an element informing their assignment decision making. Finally, *Admissions* and *Discharges* were also considerations with respect to distributing them equitably between nurse-patient assignments.

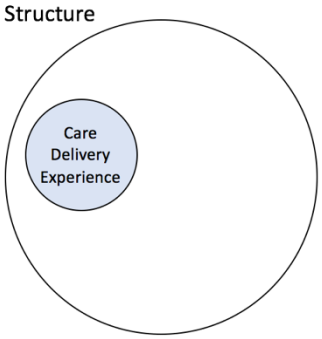
Factor Summary.

Charge nurses considered numerous and diverse factors. These factors were sorted into groups to facilitate their analysis and discussion. The groups include: **Patient**, **Staff Nurse**, **Environment**, **Ratio**, **Nurse Manager Role**, **Family** and **Other**. These

groups were further sorted into *categories* to identify them at the level of specificity that charge nurses discussed and considered them.

The number and diversity of these factors provides insight into the complexity of the development of the nurse-patient assignment. These factors and language aided charge nurses in developing the nurse-patient assignment by facilitating their ability to capture the nuance of specific unit dynamics. More specifically, the language served as a descriptive currency allowing charge nurses to gain a better understanding of patient care needs and the experience of providing care to each patient. This insight informed their construction of the nurse-patient assignment which will be discussed in the context of the theme of Care Delivery Experience.

Care Delivery Experience.



The interviews revealed that the exchange of information between nurses and charge nurses revolved around an attempt to characterize the Care Delivery Experience for nurses relative to each patient on the upcoming shift. Charge nurses characterized the "care delivery experience" through the collection of factors representative of various aspects of their medical-surgical environment. These factors were then contextualized within the physical and emotional experience of staff nurses as well as the time associated with providing care. This section will discuss this in the four section: "Proxy Descriptors and Diagnosis", "Time", "Dynamics, Tasks, Characteristics", and "Staff Nurse Factors".

Proxy Descriptors and Diagnosis.

Charge nurses used specific terminology when communicating about patients to develop of the nurse-patient assignment. This terminology sought to capture the nature of care required as a means of informing the experience of providing care. This terminology is identified: Proxy Descriptors and Diagnoses. This would serve to inform their synthesis of factors and nurse-patient assignment development. For example, one charge nurse stated: "you can only have three patients because they're so labor intensive." (R9-1) "Labor intensive" speaks to the experience of providing care to those specific types of patients. These served as proxies for a constellation of patient care dynamics and responsibilities often associated with certain types of patients that provided insight into what the experience of providing care to those patients will likely involve. Another charge nurse stated how useful the patient *Diagnosis* and their status post procedure were to informing the nurse-patient assignment, describing "…mainly [the nurse-patient assignment is] based on what surgery they had done." This was reiterated describing "fresh trachs, neurological patients…they're usually a bit heavier" whereas in contrast other patients were identified as "easy oral surgery [patients]." (R9-1)

The experience of providing care was also contextualized within these patient care *categories* by discussing each patient's ability to participate in their care. This was communicated in numerous ways by using terms such as "independent" and "heavy". One charge nurse described that patients "can be here so long that they decline, or they can be here so long that they become independent with their care." (R9-1) Recognition of the independence of patients speaks to the experience of staff nurses needing to provide various types of potential care support for their patients. Another charge nurse described making a judgment call that deviated from their number based allocation system because

"even though they score that way, they're kind of heavy together." (R9-4) This identifies how expert staff nurse judgment is used to contextualize patient care dynamics and speaks to the experience of caring for patients that can extend beyond what enumerative tools or scales currently provide.

Terminology implemented to convey an understanding of the experience of caring for patients within these patient factor categories included "heavy", "acute" and "complete". One charge nurse identified considering and separating "heavy" patients because if they do not it "will wear out nurses". They described these "heavy patients" as ones that use the "call light all the time or very depressed, just doesn't participate at all. Like, you know, the ones that we need to spend time with it. Those are people, heavy." This identification of patients as "heavy" accompanied by consideration of the effect that they can have on their care provider demonstrates an appreciation of the experience of care delivery. Considering if a patient is "emotionally draining" also speaks to the experience of providing care.

Another charge nurse describes considering acuity. They state that when they "think of acuity on [their] floor…[they] don't necessarily think of if they're sicker, but, I guess, more monitoring." (F12-3) This consideration of acuity reflects the amount of monitoring that a patient will require, which speaks to an appreciation of the cognitive and time experiences associated with care delivery. Finally, charge nurses discuss certain patients as "completes". They discuss the importance of identifying the patients who "are difficult and which ones we call completes" because "they can't do anything for themselves." (F12-5) They go on to describe the identification of completes and semi-completes which are patients that require less assistance but are not fully independent.

The identification and consideration of patient limitations with respect to self-care highlights an appreciation for the experience of providing care to these patients.

This terminology serves to capture the type of care patients require to inform the experience of care delivery. That understanding can be leveraged to inform an understanding of the experience of providing care to each patient. These insights can be used in practice to better understand the experience of providing care to patients as a means of inform the nurse-patient assignment.

Time.

Charge nurses also discussed time in various contexts as an element of characterizing the experience of providing care. One charge nurse identifies patients that require "Q1 hour checks" as an element that they consider. This hourly requirement to monitor a specific clinical issue was a time related element that partially contributed to the patient being identified as challenging. Another charge nurse stated that they "try and like highlight which patients…are the most time-consuming, the most sick on the floor." (R6-4) Another charge nurse describes considering "…if they are more like time consuming or if they're sicker." (F12-4) This recognition of time associated with the care of certain patients demonstrates that charge nurses recognize that time is a dimension informing the experience of providing care.

The consideration of time can be further understood in the following charge nurse that description: Assessing "…the amount of time the patient takes up [because]…that patient may walk for themselves—but has pages of medications. So that would be maybe…a more moderate patient…even if it's a person who…can't… move, [they require] a two-person assist, but they don't have any medications." (F14-1) Here the

charge nurse describes the factors of patient independence and their medications in terms of how they may individually impact the amount of time that is associated with providing care and thus the experience of providing care which they consider.

Time was discussed in various contexts by charge nurses both directly related to other factors and independently as a means of understanding and characterizing the responsibilities within the clinical environment. These time-related responsibilities provide perspective into the nature of care that patients required and were discussed by charge nurses as a factor they considered when develop the nurse-patient assignment.

Dynamics, Tasks, Characteristics.

The section will identify the nature of the patient factors within the categories of Dynamics, Tasks and Characteristics and how charge nurses consider them to complement an understanding of how they seek to characterize the experience of care delivery. Factors in the category of Dynamics includes terms like “fall precautions”, “sundowners”, and “impulsive”. Each of these were referenced in a context that conveys an understanding of and appreciation for the experience of providing care to patients who may have experienced them.

For example, a reference to a patient on “fall precautions” serves as a recognition of one dimension of care required of certain patients identified as at risk for a fall. If a patient is identified at risk for a fall, insight is provided into what the experience of caring for that patient may entail. They describe that a patient could be identified as a “two” on their three-point ranking scale if they require “a little more assistance, like, getting [out of] bed to the commode or a fall precaution, something like that.” (F14-3) The experience of providing “a little more assistance” to patients on fall precautions may involve

additional monitoring or physical support which this charge nurse demonstrates appreciating when developing the nurse-patient assignment. Similarly, "sundowners" can be a term used to refer to individuals that become disoriented and exhibit behavior changes at specific time points that may place them at greater risk for a negative outcome. One charge nurse describes how an awareness of this patient characteristic may serve to inform the understanding of the care requirements. They state that a patient identified as a "sundowner" along with other characteristics like impulsivity or whether they have dementia may contribute to them being identified as requiring more care, or identification as a "complete" patient.

Staff Nurse Factors.

Once charge nurses have gained an understanding of the patient factors present on their unit, giving them a sense of what the experience of providing care to those patients will entail, they then further considered these factors in relation to the unique identities of staff nurses. This gives them a further sense, when developing the nurse-patient assignment, of how the respective experiences of providing specific types of care will be experienced by each staff nurse. Charge nurses' descriptions of how they considered these nurse factors conveys their appreciation for the significance of how nurse factors influence the experience of providing care. Descriptions of how charge nurses consider staff nurse factors such as "personality", clinical "experience" and "preference" will be outlined to provide insight into how they inform their development of the nurse-patient assignment.

One charge nurse described trying to incorporate into their assignment design the goal of obtaining a "personality fit" between the staff nurses and patients. (R6-3) In some

circumstances charge nurses described how their allocation decisions may be informed by a consideration of whether they believe that a patient "might benefit from a different type of personality." (R9-3) Charge nurses also report considering personality in the context of potential family or patient satisfaction issues. They stated: "If the patient has family, and, satisfaction issues, I won't give a nurse…[that] has the reputation of attitudes. I will give somebody that's really caring and [will] pay attention to the patient. That will help them recover better." (R9-5) The consideration of staff nurses' personality is reported to also be considered in certain circumstances in the context of a nurse request. The charge nurse describes that a staff nurse may communicate to the charge nurse that they "don't want [a] patient back. Whether that be for… attitude/personal reasons, like they just didn't get along with the patient." (F12-5) These speak to an appreciation for the interpersonal experience of providing care.

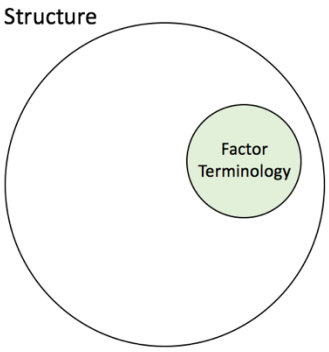
The clinical experience of staff nurses is also considered by charge nurses when contextualizing the experience of providing care. They describe that they have "seen it be overwhelming for new to practice nurses" with respect to "how much care [certain patients] need." For example, if they have a "PEG, a trach, a wound, that can be a little overwhelming for a new nurse [because] they probably wouldn't even know where to begin." (F12-1) Another charge nurse described, "If they're newer nurses, I try to like as evenly distribute it, but the lighter end, yeah, it's mostly those two things." (R9-3) The charge nurses described considering experience in different contexts. One broadly referenced how they make decisions about the nurse-patient assignment by considering the staff nurses' experience i.e. "You want to keep your staff happy. You don't want to make them miserable all the time." (R6-5) Another charge nurse also described

considering "if a nurse was pregnant, [because] obviously, that would [be] a big factor" because "they can't have really heavy patients." (R6-4) These two examples serve as recognition for how charge nurses consider the emotional and physical experiences of nurses providing care. Overall, these examples provide a broader perspective into how charge nurses describe considering staff nurse factors when developing the nurse-patient assignment.

Care Delivery Experience Summary.

The process of developing the nurse-patient assignment as described by these charge nurses was more nuanced than the enumeration of specific tasks followed by a division of those tasks. Their plan for providing care included considering the multidimensional experience of providing care, unique characteristics of each nurse, diverse patient care needs, and a specific physical environment.

Factor Terminology, Meaning and Communication.



The interviews reveal that the language charge nurses use to communicate about patient characteristics and inpatient dynamics varies. This variation will be highlighted through the discussion of the terms "acuity", "complete", and "heavy" (three common Proxy Descriptors central to unit-driven strategies to develop the nurse-patient assignment).

All charge nurses interviewed used the term "acuity", fourteen used the term "heavy" and thirteen used the term "complete". The variation in use of the terms "heavy"

and "complete" among the charge nurses could not necessarily be attributed to unit differences because at least one charge nurse on each of the four units used these terms.

One type of variation in terminology, other than charge nurses using different terms, relates to how these terms were used in relation to one another. One charge nurse used the terms acuity and heavy both separately and jointly in different contexts. For example, when describing their clinical environment, they stated that they work on "a very heavy acuity…floor." (R6-3) They continue to describe the patient population stating that they have "heavy patients" and, in this case, identifies "confused patients". In other circumstances this charge nurse identifies "the acuity of the patient" as a consideration when developing the nurse-patient assignment. The uncertainty with respect to the specific meaning of these terms is identified in this charge nurse's explanation of their goal where developing the nurse-patient assignment. They state:

> [The]…overall goal in matching [patients] to nurses would be safety. It would be safety…you can't give all heavy patients to one [staff] nurse. I mean you're looking at acuity. We have drips. A [lot of] these patients have a lot of tubes, drains, what have you, they need to be gotten up, you know, walk the hallway, what have you. (R6-3)

In this example, they identify heavy patients in general and then also identify considering acuity, however, it is not specifically clear if these are identical, related or different constructs. The ambiguity of these terms was reinforced by charge nurses using them in multiple contexts without always specifying their intended meaning. In certain circumstances charge nurses did, however, provide some specificity with respect to their meanings in their descriptions. One described:

> … [separating the ones who hit the] call light all the time or [are] very depressed, just doesn't participate at all. You know, the ones that we need to spend time with…those are…heavy. The other heavy will be physically heavy. Like if they

> can't move, you have to turn every two hours or three hours. Those are considered heavy, too. So I put all those [in a] category as just heavy and then the clinically acuity separate. (R6-2)

Other charge nurses would use the terms in a more targeted way referring to the acuity of patients and heavy regarding nurse-patient assignments. One charge nurse used them in this fashion describing that, with respect to their patients, they "have a high acuity and different needs" and that they try to "spread it around. Try not to give every, you know, one nurse with a heavy assignment." (F14-2)

The characteristics or type of patients identified as "heavy", "acute" and "completes" varied between charge nurses too. One described completes as patients that were

> …bed bound, trached and pegged, incontinent, maybe, like our sundowners, our dementia patients, those who are like impulsive. Those are the more challenging patients. The patients that need a little bit more care. (F12-4)

Another charge nurse identified "completes" as "patients that are usually bedbound and incontinent, meaning they require probably at least two people any time if you [want to] do anything with them." (F12-5) These two descriptions of patients identified as "completes" have similarities with respect to the identification of the factor of incontinence and requiring more care from providers. These descriptions, however, also identify different characteristics. Moreover, there are similarities between how some charge nurses use the term "complete", and how others use the term "acute". One charge nurse stated that they identify patients as acute "if they require a lot of your assistance, if you're in the room a lot." (F14-2) In contrast, other charge nurses use acuity to refer more specifically to a clinical status. They describe "acuity is really, in terms for me, it's a clinically—you're unstable, stable. You need more time to monitor things." (R6-2)

Each of the eighteen, fourteen and thirteen ways that charge nurses used the terms "acuity", "heavy" and "complete" respectively demonstrated significant or nuanced differences in meaning. There was also overlap in the apparent meaning of these three terms between charge nurses. Moreover, some charge nurses used the terms differently in the context of the same interview. One charge nurse used the term "heavy" to describe the unit stating that they had a "heavy Thanksgiving" with respect to the nature and amount of patient care.

Overall, the terms were used to represent diverse characteristics related to the patient, the unit, and assignments. They were used in combination with one another by some charge nurses and then, in other instances, referenced individually. These terms were used in a serial fashion describing a specific type of patient and were used to describe specific patient characteristics and patients overall.

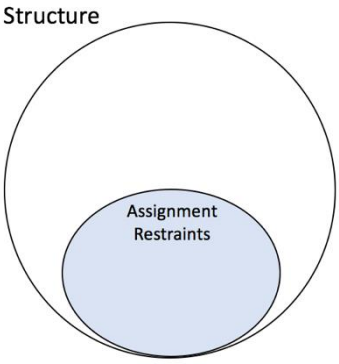
When an inquiry was made about how determinations were made regarding the identification of patients as "acute" or "completes" and whether they had a checklist, one charge nurse stated "no, there's no checklist" and that the rating of patients on their classification system was "basically subjective". Another charge nurse said that it was completely a "judgment call" about the classifications of patients.

Additionally, adding to the complexity of understanding the meaning of the terminology of charge nurses, the terms "acuity", "heavy" and "complete" were also, at times, used with other terms such as "complex", "difficult", "semi-complete", "sick" and "challenging" to describe patients. An analysis of the use of terminology in practice illustrates variation in the language selected between charge nurses to communicate and the intended meaning of that language when developing the nurse-patient assignment.

Factor Summary.

This section provided an overview of the factors considered and the terminology used by charge nurses when making decisions about the nurse-patient assignment. The approach to organizing these factors produced the groups: **Patient**, **Staff Nurse**, **Environment**, **Ratio**, **Nurse Manager Role**, **Family** and **Other**. Each of these groups were further divided into categories to illustrate the complexity of data charge nurses considered when developing the nurse-patient assignment and to identify the terminology that charge nurses used with the specificity that they used them. The specificity of the categories also facilitated the identification of the theme of Care Delivery Experience and sub-theme of Factor Terminology.

Assignment Restraints.



"Our manager likes us…to do [the nurse-patient assignment] geographically, but, you know, we told her in our core charge meetings, like it doesn't always work out like that." (R6-4)

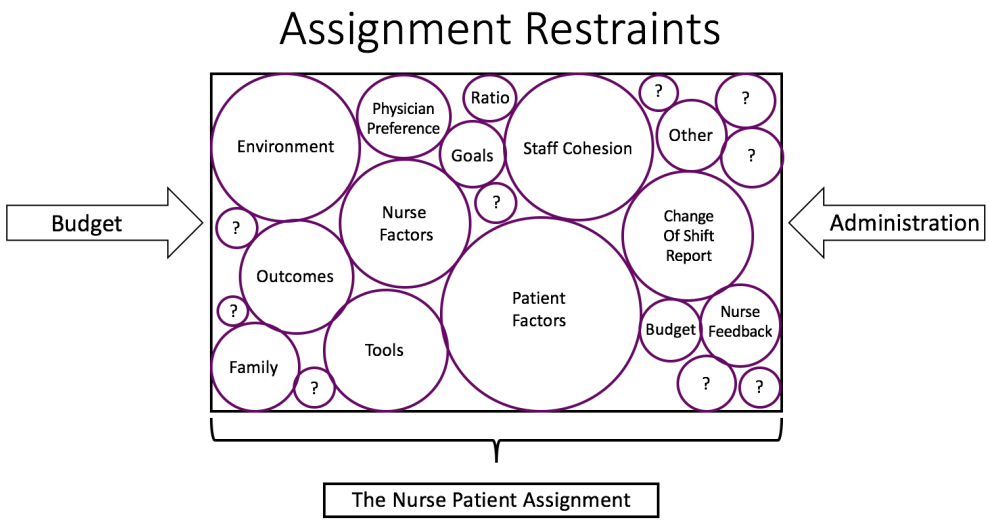
The first aim of this investigation was to describe the process of patient care allocation through the nurse-patient assignment. This involved the description of how charge nurses gather information and make the assignment.

The second aim of the investigation was to describe the factors that influence nurse patient care allocation decision-making. This, in part, involves the description of the factors that charge nurses report considering as they directly relate to the mechanics of designing the nurse-patient assignment. Although these factors influence nurse patient

care allocation decision-making, they are not the only factors that charge nurses described as influencing their allocation decision-making.

Assignment Restraints are structural factors separate from nurse, patient and other factors that influence nurse patient care allocation decision-making. These factors include the budget and administration (Figure 4.3). The nature of these factors is unique in the clinical environment with respect to how they influence decision making and are identified as Assignment Restraints.

Figure 5.



Budget.

Charge nurses identified how the budget can influence the development of the nurse-patient assignment. It was discussed by charge nurses across all units. One charge nurse identified that their unit's budget for staffing was recently adjusted to maintain a nurse-to-patient ratio of 1:4 but that it was not always successful at maintaining this ratio. They described: "This past July…this fiscal year we got budgeted for …four patients a nurse. It doesn't work out all the time. Like today we have five. It doesn't work out

sometimes when we have the i—iBeds because that nurse has three, so that [pushes] someone else to five." (R9-1) They continued to describe other scenarios where they faced challenges with respect to balancing the needs of the unit with what the budget permits. They referenced a time on the unit describing how

> …many [nurses] had two trachs. It was very heavy…even though there [were] only 15 patients on the floor…if you go to the [staffing] chart it's like oh, we can only have this many nurses. (R9-1)

This challenge of making staffing decisions based on what the budget allocated for the unit when the needs of the unit were high was one encountered by other charge nurses. They stated: "You know you have a budget [and] to be really honest with you, I do run tight on budget normally." (R6-2) To "run tight" on the budget reflected efforts to make staffing decisions that remained within the bounds of what the budget guidelines outlined regarding staffing. These budgetary and staffing decisions could create conflict, however, when charge nurses believed they needed to staff the unit to maintain safety in a way that deviated from what the budget outlined.

They continued to provide insight into these budget and staffing dilemmas. The charge nurse described that not permitting deviations from the budget may increase the length of stay and identified the interplay between staffing and staff nurse safety. They stated:

> Patient safety really relates to nurse safety, too, because we're the one taking care of [them], so if anything goes wrong, that nurse missed or couldn't get to it, and she will be pushing herself, like, you know, how many days, weeks. (R6-2)

A charge nurse on a different unit introduced a discussion about how the budget influenced the nurse-patient assignment stating: "The budget is always an issue. It's always. We are very, what do I say? Limited because of the budget." (F14-2) They

continue to specifically highlight the balance between day shift and night shift. They described that they face budgetary and associated staffing challenges

> …a lot of for night shift, because it's during the day [that] we staff them really good, and… staffing is more available too, during the day shift. And when it comes to night shift, [because] they use … most of their budget, they're [kind of] like maximize, and then they try to go a little low on night shift. And … I see that as a challenge. (F14-2)

Another charge nurse broadly stated that when making the nurse-patient assignment "most importantly we have to try to follow the umbrella of the budget." (F12-1) Another charge nurse describes varying degrees of flexibility regarding the budget depending on the time of the month. This timing affected staffing and, consequently, decisions related to the nurse-patient assignment. They described: "A lot of times in the beginning of the month like our budget's good [because] it's like just restarted, so then it's like towards the end of the month is when they want you to be like tight with as far as like running with a certain, a number of [staff] nurses." (F12-2)

These examples represent charge nurse perspectives from all four units. Although not all the charge nurses identified challenges with the budget influencing their approach to the nurse-patient assignment many did described. In these circumstances, there were times when the guidelines might interfere with their ability to develop the nurse-patient assignment in a way that aligned with their goals. For this reason, this theme was identified as an Assignment Constraints.

Administration.

The budget can influence how charge nurses design the nurse-patient assignment and the administration was, at times, described as influencing decisions related to budgeting and staffing. In certain circumstances the role of the administration would

influence the way in which the charge nurse developed the nurse-patient assignment. Although charge nurses did discuss the support that their nurse manager provided, others described points of conflict or intervention. They described:

> The only conflict would be when the floor is really heavy, and then we have five patients…then [management would] start talking about the budget. "Well, we really can't afford to have another nurse come in." Or, you know, or "We're overusing budget this year, so we really can't." That's the only time we may come into conflict. (F12-1)

The nature of this experience of charge nurse conflict was reiterated by a charge nurse on another unit. Before they discussed the topic of conflict related to the budget they wanted to be assured that their responses would be anonymous. (Subject ID redacted to assure complete anonymity). This charge nurse and others described negotiations and encouragement of management to work towards making staffing decisions that remained within the budget guidelines of the unit.

A charge nurse on another unit described the influence of their nurse manager on budget decisions as a discussion. They described that although they as the charge nurse had the authority to make staffing decisions, they would "always check with management about…what route to take." They described presenting their recommendation of staffing needs to the manager and "sometimes they'll agree, sometimes they won't." (F14-1)

Charge nurses reported ways in which the nurse manager would influence the development of the nurse-patient assignment in other ways than staffing decisions related to the budget. These involved expressing preferences or developing guidelines regarding how the nurse-patient assignment should be developed. One charge nurse described that at their "charge nurse retreat that [their] manager asked [them] to try to…if possible, put patients in a double room with the same nurse." (F12-5) These double rooms only had

one computer so this suggestion was made to prevent two staff nurses from needing to share one computer.

Another charge nurse described that their nurse manager may make a recommendation, based on a patient complaint, to develop the assignment in a certain way. For example, if the nurse manager on their daily patient rounds encounters "a patient complaint" they may "say can you assign this nurse to [this] patient?" as a means of addressing that concern. (F14-3) Another example was a charge nurse describing how "sometimes the nurse manager will leave a note for the charge nurse being, like, "Hey, put this patient in a three-patient assignment," or whatever."

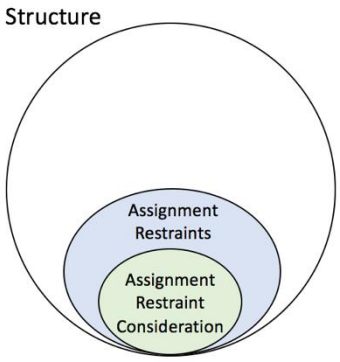
Charge nurses reported guidelines provided by nurse managers on other units too. They referenced that at their "charge nurse retreats" they would be provided "a guideline that they like [them] to adhere to." (F12-4) This guideline advised them not to assign nurses floated to their unit that were less familiar with their patient population specific patients. They also provided guidelines regarding the "type of assignment [they want to] give like the newer practice nurses when they're off orientation." (F12-4)

Charge nurses on one unit spoke of their nurse manager's preference to prioritize minimizing the distance between rooms when making the nurse-patient assignment. One stated: "The manager feels that you should not like, be running up and down the hallway" (R6-3) and the other stated "our manager likes us…to do it geographically." (R6-4)

These represent the ways in which charge nurses reported nurse managers influencing nurse patient care allocation decision-making. These topics of intervention included the budget and resulting staffing decisions, input about the development of

nurse-patient assignments for specific patients, the prioritization of certain factors such as proximity of rooms in assignments and general guidelines for assignment development.

Assignment Restraint Consideration.



"If I see the acuity that's not safe, I don't care, honestly. I don't care how much budget we go over." (R6-2)

How charge nurses reported considering and responding to the Assignment Restraints varied. Some of the charge nurses described following the budget, while others described deviating from the budget guidelines to accommodate other competing interests such as patient safety. Other charge nurses would reach out to their nurse manager and consult them when making these decisions. The variation is identified by the sub-theme of Assignment Restrain Consideration. It highlights how specific factors influence charge nurses in different ways with respect to the development of the nurse-patient assignment which is an element of the second aim of this investigation.

In response to budgetary challenges and potential conflicts with the nurse manager one charge nurse described:

> If I see the acuity that's not safe, I don't care, honestly. I don't care how much budget we go over…safety [overrules] the budget. So sometimes we get into trouble with that, but, well, I get trouble only one day, but the patient will be okay.

A charge nurse on another unit similarly describes this decision point. They speak to the challenge of deciding whether to deviate from the budget guidelines to maintain patient safety or not to deviate and potentially compromise patient safety. They identify that in these circumstances they have to make a "judgment call." They describe that when the floor is "very heavy"

> …a lot of times we were running either probably one [nurse] over [the budget], but then we might run, you know, we would only have one aide. So I mean it's a judgment call. But if there's that many trachs it just becomes what's more important? Like safe—patient safety or—that's how I feel. (R9-1)

This sentiment of deviating from budget guidelines was not shared by all the charge nurses. Other charge nurses would reach out to their nurse managers and follow the guidance that they provided or just maintain staffing per the guidelines without consulting the manager.

There was also variation in how charge nurses responded to the influence of their nurse manager preferences. One charge nurse described that they would not always follow the recommendation that their nurse manager communicated about minimizing the proximity between rooms within each staff nurse's patient assignment. They described that their manager

> …gets upset sometimes when—like say I'm on [room] 631, and then I also have [room] 634, but like, really, those patients are fine, and it's just—it's fair because I'm not [going to] put, you know—have a patient in a four patient assignment just because that's—geographically fits, and it's a tough assignment, I wouldn't do. (R6-4)

In this circumstance the charge nurse states that they would not follow the nurse manager's recommendation. Another charge nurse on the same unit also addressed this challenge related to nurse manager input. They stated "the manger did bring it up about geographical assignment." They describe the complexity of these decisions outlining all the factors they consider and that prioritizing the location of rooms over other factors may result in an "unfair assignment." They state:

> [I] try to explain to the manager that there [are] so many things to consider. You're considering experience. The geographical location, the acuity of the patient. I can give you 31A and B, 33A and B, which are like next door to each other, and it would be such like an unfair assignment, just because you don't

> [want to] travel. Or the manager feels that you should not like, be running up and down the hallway. You know, heavy patients, maybe all confused patients. It's not a good mix. So I try to not have them go from say, 30, which is at the extreme end of the hall, that way and then 47, which is right here. I mean that's like a no-brainer. So we try to eliminate like extreme, you know, running around. But there are times when you have to cross the hallway, take an even, an odd, just to have a good mix, break up the isolation, break up the acuity. (R6-3)

These two charge nurses identified both some of the complexity of developing the nurse-patient assignment and how they not only disagree with their nurse manager's recommendations but also do not always choose to follow their recommendations.

With respect to the nurse manager's preference for assigning patients in a double room to the same staff nurse one charge nurse stated "whenever possible, I try to put those [patients] together and give them the same nurse just [because] there's only one computer in the room." They do identify, however, "there are some nurses that I've talked to that prefer not to have both patients in one room. So that's a very, like, nurse-specific thing." (F12-5)

These examples provide insight into how some charge nurses will consider the Assignment Restraints differently. Some charge nurses will follow budgetary guidelines and others demonstrate deviating from them. Similarly, some charge nurses will follow the recommendations of their managers and others will choose not to depending upon the circumstances.

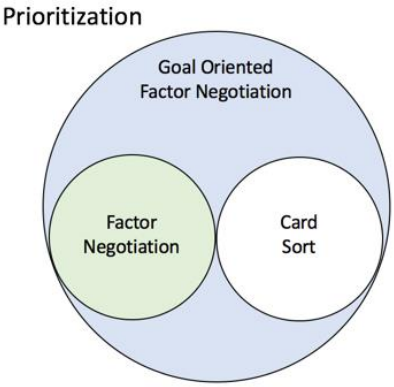
Summary of Structure

This section serves to outline the factors that the charge nurses identify as considering within the context of developing the nurse-patient assignment. The charge nurses identified considering factors that were organized into the groups: **Patient**, **Staff Nurse**, **Environment**, **Ratio**, **Nurse Manager Role**, **Family** and **Other**. The theme of

Care Delivery Experience and Factor Terminology provide insight into how these factors are considered and discussed in practice. Assignment Restraints were discussed as well and how they were unique from other factors outlined in how they influence allocation decision-making. These "assignment restraints" were further discussed in relation to how they were considered differently by charge nurses related to the sub-theme of Assignment Restraint Consideration.

Aim 2-b: Describe how charge nurses prioritize factors in their decision-making process

Prioritization



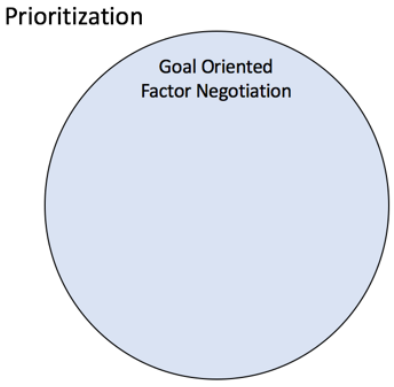
"It's a completely judgment call." (R9-1)

To more fully understand how charge nurses develop the nurse-patient assignment it is not sufficient to outline the steps of the process, the factors charge nurses consider, their broad conceptual approach to considering these factors, other forces that shape their decision-making and the goal or goals they aim to achieve when developing the nurse-patient assignment. Although detailed descriptions of these do serve to provide insight into the development of the nurse-patient assignment, the way charge nurses prioritize factors as a means of directing their decision-making affords a more informed perspective. An appreciation of their decision-making related to the prioritization of factors provides a more informed understanding of both the experience of developing the nurse-patient assignment and how charge nurses conceptualize and apply their values to make the nurse-patient assignment in a manner that aligns with their goal or goals.

Charge nurses identify how they prioritize factors through their descriptions of their nurse-patient assignment decision-making process. As outlined previously, some of the prioritization is directed by normative practices related to constructing assignments within pre-determined nurse-to-patient ratio bounds. Other prioritization, however, is driven by how charge nurses weigh the characteristics of staff nurses, patients, the physical environment and other dynamics related to workflow and the climate in relation to one another.

This section on prioritization will describe how charge nurses engage in the prioritization of factors as a means to achieve their respect goal or goals. This theme is identified as Goal-Oriented Factor Negotiation. Despite the prioritization that charge nurses demonstrate, variation exists related to how charge nurses make decisions identified by the sub-theme of Factor Negotiation. Finally, the card sort activity will be described and results outlined providing further insight into some of the shared and divergent perspectives related to the prioritization of factors related to the nurse-patient assignment.

Goal-Oriented Factor Negotiation.



"…it's a complex interlocking puzzle. If you move one thing, it's [going to] throw something else off." (F12-5)

The interviews reveal that charge nurses make complex calculations based on imperfect information in a dynamic and unpredictable environment where changes at any point may require a reevaluation and reconstruction of the nurse-patient assignment. This involved a process of value based assessments informing how to

prioritize the variables they collected as to align them as closely as possible with their goal or goals. This process is represented by the theme of Goal-Oriented Factor Negotiation. This section will provide examples of charge nurses' descriptions of complex factors and how they are considered to facilitate the achievement of their goals. Specific comparisons will be made between charge nurse descriptions of their negotiation of factors and their stated goals.

Charge nurses spoke to the complexity of this decision-making process and how they consider and balance factors. One described "…it's a complex interlocking puzzle. If you move one thing, it's [going to] throw something else off, so, usually, I just try to, you know, kind of balance it from the beginning and if people [want to] make their own changes to make their [assignment] better, that …doesn't help." (F12-5)

A charge nurse on another unit similarly explained that they will described to staff nurses their nurse-patient assignment stating:

> These are the reasons why I divvied it this way, because this one has emotional issues, or this one has physical issues, or this one's on isolation. I don't want to give him two isolation pat—" like, you know what I mean? Sometimes the [staff] nurses don't like to give report to three different nurses, which I understand. However, it really isn't about the nurse. It's about the patient, what's best for the patient. (R9-5)

This description of how this charge nurse considered specific factors and divided them in a manner prioritizing "…what's best for the patient" aligns with their stated goal. They identified their goal of developing the nurse-patient assignment in a way that is "…safe for my patients and [to] make sure, [that they are] satisfied with their care that they were receiving." (R9-5)

A charge nurse on another unit, similarly in response to a staff nurse questioning their assignment, asked the nurse to "…tell [them] why is it too much—[because] I'm [going to] tell you why I [made] this assignment." (R6-1) This charge nurse described looking at "the whole situation" when making the nurse-patient assignment, but described "acuity is the number one factor" among the many unit, nurse and patient dynamics. Their description of the assignment development reflects their stated goal of ensuring that the "patient and the nurse are safe and taking care of each other."

Charge nurses on units with an acuity scale considered factors that informed their acuity framed perspective and helped them accomplish their goals. They described focusing on the collection of data that informed their assessment of patients' acuity based on their conception of the term. They described using the identification of patients with tracheostomies on the floor as a means of assessing acuity. Beyond just distributing patients with tracheostomies equally among nurse-patient assignments, in an attempt to balance acuity, they would also assess other factors that could influence the acuity of a patient with a tracheostomy. They describe "we could have a trach that's a three, that's very needy, very anxious, has a lot going on, but then we also have trachs that are twos. I've even had a trach that's a one because he completely self-suctioned, did everything himself." This charge nurse describes how they pursue efforts to accurately assess the acuity of patients when developing the nurse-patient assignment because their goal is to "give nurses similar acuity scores." (R9-1)

Another charge nurse on this unit also described their process of considering specific factors to accurately assess acuity to establish a balance between staff nurses' assignments thus accomplishing their goal. They identified numerous factors as

contributing to the acuity scores of patients including "call bell use", the surgery they had, whether they had a tracheostomy, and "how much time the nurse is spending" with the patient. When asked about whether they considered the location of patient rooms they stated "we don't consider that" or if they do "it's on the bottom" of their priority list. Their description of factors and how they prioritize them aligns with their stated goal. They state that their goal is to "make fair assignments" and elaborate on what this means by describing "you don't [want to] give…one nurse, three trachs, because, those are heavier patients. So that's our goal with using the acuity model. And I think that the nurses value that more than having all the same rooms in a row." (R9-2) In this description the acuity model served as a tool to assign values to patients with certain characteristics. These values are then balanced as evenly as possible as a mean of assuring a fair assignment. Their identification of assigning a low priority to location aligns with the nature of their framework, a patient acuity focused model, and how they aim to achieve their goal of fairness, by balancing acuity scores.

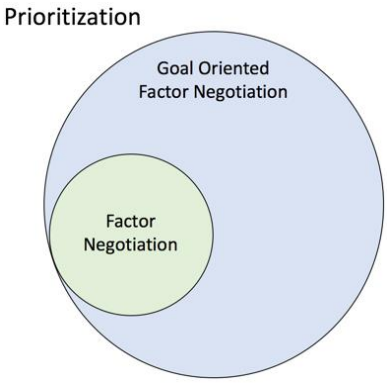
Even on units without an acuity model charge nurses would report that they focused on considering acuity and factors that contribute to their perception of acuity to achieve their goals. This charge nurse identifies "safety will be my first goal—for patient and also for nurse" … "and then second one is usually fairness for the—everyone." They also identify their conception of safety for nurses and patients as related. They stated: "For me, patient safety really relates to nurse safety." These stated goals and how they are prioritized along with their conception of the relationship between staff nurse and patient safety align with how they approach the construction of their nurse-patient assignment. They identified:

> …acuity will be my first factor to consider, and then location around that acuity patient. And then, let's see—the isolations, and then also fourth one usually physically or emotionally heavy—that you need to spend time. I consider first factor is more important. And the rest of [them]—if I can make it, great, but if I have to sacrifice the, safety, I don't do it. So that will be more important. Right. So, because safety comes first before your preferences, [when] I explain my [rational to the staff nurses], they're usually okay [with the assignment]. (R6-2)

This prioritization and consideration of factors identifies a clear focus on acuity as a target metric when developing the nurse-patient assignment as a means of ensuring safety. In their description, they also identified considering preferences, but as less of a priority than acuity, just as fairness is less of a priority than safety.

The charge nurses' descriptions of their considered factors and how they synthesize them aligns with can be their respective goals. What the descriptions reveal is that the factors that charge nurses consider and how they consider them relates to their identified goals. This common practice of collecting, framing and negotiating factors in a manner that aligns with their respective goals identifies this as a theme among the charge nurses.

Factor Negotiation.



"One [stressor] is whether I satisfy the budget or do I satisfy [staffing for the unit's] acuity…second is, nurses… "Do I really want this nurse for that [sick] patient?" But then if I have this one nurse who's always getting sick patients, should I still give her that? So it's patient safety versus, nurse burden, too. So that's our, dilemma…all the factors. Do we do acuity versus your distance or do I give two isolation [patients to one staff nurse] versus…you know? So all the assignment factors can be stressors." (R6-2)

Despite the similarities with respect to charge nurses' Goal-Oriented Factor Negotiation, the interviews revealed that charge nurses prioritize factors in different ways

as they negotiated their way to developing a nurse-patient assignment that reflects their goal or goals. This variation is identified by the sub-theme of Factor Negotiation. This section will be structured around identifying differences in the way specific factors are considered.

Staff Nurse Experience.

The experience of the nurse was a factor considered by charge nurses in different contexts and in varied ways. One charge nurse described that they "take into account if that person's a new to practice nurse" when getting updates about patients and listens "very carefully to the past medicine history and what's going on with the patient" to be sure they are receiving an accurate representation. (F12-1) This same charge nurse described that they also consider how experienced a staff nurse is when making the assignment for the next shift. They describe that they

> …take into account whether that person is new, that nurse is new, how many years of service she's had and, whether they're, more advanced, such as me. If it's a new to practice nurse I want to make sure I give that person maybe TPN or, a trach or, some wounds, just so they can start to get more comfortable. And like you know when you first come off, they're like really afraid. but for the new to practice nurses, I try to be a little more lenient. I try to give them a lighter assignment. For me, I just think that's just best for them in order for them to adapt to that type of floor because we have so many disease processes on our unit. So I think about that when I'm doing the assignment. (F12-1)

The way in which experience was considered, however, varied. One charge nurse on the same unit described how they

> …feel like some charge nurses, purposefully give the more, not necessarily sicker but, like, higher work intensity of patients to some of the newer nurses to kind of break them in…I would say if a patient is really high acuity, like, really sick, I would not give them to a new nurse. I would give that to a more experienced nurse, but, talking about just patients that are a large workload, not necessarily sick, but just require a lot of physical work, those—I don't know. It seemed like they get pushed more towards the newer nurses, so I try to not do that. (F12-5)

Again, a third perspective on the same unit regarding the consideration of nurse experience reveals a different perspective. The charge nurse explained:

> …for patient needs, honestly, sometimes I think, oh, I should give the sicker patients to, like, the more experienced nurses, but I think, on this unit, it does tend to be—I think—honestly, I think the sicker patients get the newer nurses— to tell you the truth. I really do. I mean, I don't think about that much in my assignment, but it seems like that kind of happens, I guess. (F12-3)

The rationale from charge nurse to charge nurse and unit to unit can vary as to whether staff nurse experience should be considered, and if it should, then when and how. These three charge nurses identified different perspectives that range from potentially assigning lighter assignments when considering new staff nurses to a perception that new staff nurses will get either heavier patients or "sicker patients" when compared to more experienced staff nurses. Another charge nurse from a different unit adds to the complexity of this factor negotiation when describing a clear position of matching more experienced nurses with the more complex patients but then describes some consideration of the type of charge nurse working with the new staff nurse. They described:

> If a patient is [a] very complicated case, [with] lots of complications, I'll give to somebody that [is] more capable of managing [a] stress point situation. So I'll give to more experienced nurse. But sometimes I think new nurses also need experience to deal with the, the complicated case. So I think they, they, they sometimes I will see who the charge nurse is and whether that charge nurse is really supportive or helpful to, to the other nurses. So if that, if I feel that charge nurse is really that can give a lot her help to the new nurses, so I will give some complicated nurse to—complicated patient to the new nurse with the support of charge nurse. (R9-5)

Charge nurse after charge nurse provide different interpretations with respect to how and when they consider staff nurse experience. The terminology referring to

experience varies including terms like “newbies”, “new to practice”, “junior” and “less experienced”. Only one of the charge nurses chronologically qualified how they considered experience. They described:

> For those nurses who are probably less than two years of experience and didn’t have the experience in taking care of the very acute patients, I take that as consideration. if the charge nurse has no patient assignment, then I will give this junior staff that chance to learn, but if—if the charge nurse will have assignment at night, I would not give the junior staff that kind of acuity because they don’t have enough support. (R6-1)

These examples provide insight into how the factor of staff nurse experience is differentially considered by charge nurses as they negotiate factors in the development of the nurse-patient assignment. Similarly, charge nurses’ descriptions identify the use of different language to refer to experience when considering these factors.

Staff Nurse Pregnancy.

Charge nurses identified staff nurse safety in numerous contexts including among their goals when developing the nurse-patient assignment. One of the contexts in which staff nurse safety was discussed was regarding the consideration of staff nurses that were working while pregnant. This was a factor that was considered in different ways. One charge nurse who described: “…other nurses more so than me will cater to the pregnant nurses.” (F12-5) This charge nurse went on to describe that they:

> …feel like if you need special treatment to do your job, you shouldn't be doing it. Like, you should be on leave or something. I mean I'm not [going to] give you the heaviest [assignment] on the floor, but, if you're asking for, like—that's just my opinion, but I don't say that out loud because—we have a lot of pregnant nurses at times. (F12-5)

This charge nurse similarly described the expectations of some staff nurses with respect to their expectations:

> …some of them…will not [want] patients with CMV [cytomegalovirus]. … that used to be a thing, but it's not anymore. Like, it's not, like, a risk, but still some of them just, don't want—you know? They will—they will kind of fight tooth and nail. They'll, trade patients with other people. They don't want—when they're pregnant, they don't [want to] take care of someone with CMV. But that's not something that the charge nurses track. (F12-5)

Other charge nurses, however, expressed different opinions. Charge nurses identified the importance of considering whether a staff nurse was pregnant when making the nurse-patient assignment. Of note, one of these charge nurses was also one of the ones that in the card sort activity identified that, as their highest priority, they only considered patient needs and preferences (and did not consider staff nurses). They contextualized this by saying "as far as like needs of the [staff] nurse, like I don't—I don't know. I don't feel like you have any that should—like you're getting paid to be here." (R9-1) Nevertheless, when it came to pregnancy, they described:

> For example, I'm pregnant. I came in a couple weeks ago and they gave me a patient on chemo. I can't even touch his pee. I was like why do I have this patient. And at this point everyone had already [received] report. I was like this is a complete waste. The charge nurse was irritated because she was pretty much do[ing] everything [for me for that patient]. (R9-1)

Other charge nurses shared this belief and explained: "If a nurse is pregnant you have to take [that] in consideration [making] the assignment…You don't [want to] put that, nurse at risk." (R6-3) Similarly, another charge nurse conveyed "if a nurse was pregnant, obviously, that would have a big factor… like they can't give [chemotherapy], they can't have really heavy patients." (R6-4)

Staff Nurse Preferences.

Among the interviews charge nurses identified considering staff nurse preferences. Charge nurses reported considering and prioritizing staff nurse preferences

differently when constructing the nurse-patient assignment. There were charge nurses who conveyed that they were not aware of nurse preferences and thus were not able to consider them. One described: "I don't know if some nurses prefer traches to ostomies or isolation to or anything like that, no." (F14-2) Another charge nurse described that it is not feasible for them to consider nurse preferences. They explain that they do not consider, for example, if a patient has a tracheostomy and a [staff nurse] "…loves doing trachs" because they, in their charge nurse role, are "…just too busy to even get to that level of [specificity]—when making the assignment." (F12-3) Some charge nurses, in relation to patient characteristics do try to integrate staff nurse preferences. They describe that half of their unit "…are oncology. And certain staff nurses don't like, surgical at all, so I'll try to give her the oncology patients who likes oncology. If that nurse likes surgical, patient, try to give that patient the nurse to do a surgical. So I try to kind of, I guess, do what they wanted." (R6-2)

Another common preference that is vocalized by staff nurses at times is that they may not want a patient again if they are returning the next day. As described, continuity of care is often a priority for charge nurses so these requests illustrated an example where aims or goals could conflict. Charge nurses negotiated these conflicts in different ways. Some charge nurses described accommodating these requests. One stated:

> Nurses are very vocal and they'll say if, for example, I have this type of assignment today, they will say, "for tonight, please do not give this certain patient and this certain patient together because they like really need a lot of care," and I always listen to that. (R6-1)

In some cases, charge nurses identified efforts to accommodate the requests but they describe making attempts to honor verbalized staff nurse preferences. One described:

> We try, usually try to accommodate what the nurses request. because you know you [want to] make them happy, too. I don't want them start their shift grumpy. So most of the time if they say they don't want a patient back, we don't give them back to them. (F14-2)

For other charge nurses, however, it is more complex and sometimes involves a negotiation. For example, if a staff nurse communicates "I can't have them tomorrow" then the charge nurse will

> …try to talk them out of it, [because] we try to be fair to everybody else. Like, "What's the reason behind that, is that something I can fix?" do you just—really just you're done. (R6-4)

These serve as representative characterizations of how charge nurses approach the prioritization of staff nurse preferences. These quotes identify that there is variation in how and when charge nurses consider staff nurse preferences when developing the nurse-patient assignment. Charge nurses describe how their decision-making is informed by their expert judgment of factors and unit dynamics including preferences. Their judgment informs their decision-making and drives the development of the nurse-patient assignment.

Staff Nurse Personality.

Charge nurses identified staff nurse personality in eight of the interviews. They identified considering and prioritizing staff nurse personality in different ways. An understanding of staff nurse personality can help to inform the experience of providing patient care which may impact staff nurse and patient outcomes. One of these distinct

variations is around the contrast of some charge nurses considering nurse personality as very important and others not at all or very little. One charge nurse, when asked whether they considered staff nurse personality when developing the nurse-patient assignment described: “I don't have that capability…you'd have to have everyone evaluated and I wouldn't know how to even start with that.” (F14-1) Other charge nurses, however, stated that they considered personality. One described:

> …a patient that is just so anxious or needs that extra TLC and you’re like, “You know what, so and so is [going to] be that nurse for that patient, because so and so is [going to] give them TLC all night.” Or that patient is outrageous, they don’t listen to anything. So and so has said to them all day, “They need a tough love nurse”. (R9-4)

One charge nurse described that, regarding personality, they would maybe use it as “the tie-breaker at the end, but not really factored into, like, the beginning of the decision.” (F12-3) Another charge nurse explained that they will get a general sense sometimes about what nurse patient personality matches would be best and make assignment decisions in that manner. They described:

> In the charge report, sometimes, we do see—like, do—like, there might be a note that says, "Do not give nurse A back to patient B." You know, maybe they had an issue, or a fall-out, or something. So I definitely won't do that. Then I'll get a sense, from being in charge enough, that this is the type of person this patient gets along with. We don't have issues. So then I know those kind of nurses already on the floor, like, whose personality would fit. So then I just go by who I think would be the best for that patient. So— that kind of comes with being here and knowing the nurses' personalities. So for—that's for the patient. (F12-3)

Charge nurses describe how these decisions can become ethically and emotionally complicated. One charge nurse stated:

> I really agonized over who would get this patient [challenging patient], so you’re looking at personality fit also. Which sometimes if you think about it, it can be a little bit unfair, because that person se-seems to get the challenging patient because of his or her personality to, you know, go with the flow and what have

> you. But then you-you really—if you don't have a disastrous day or night or have the nurse being fired from that patient, so to speak, it's-it's best to really try to put the best fit as possible. (R6-3)

The concept of fairness is described as a consideration by this charge nurse when making the nurse-patient assignment. In this context they are considering staff nurse personality and identifying how the consistent allocation of challenging patients to staff nurses with certain personalities can contribute to an unfair dynamic. This can arise from efforts to assign patients with specific interpersonal dynamics to a staff nurse with a specific personality to create a nurse-patient "fit" that they believed would facilitate the delivery of care or to achieve a specific outcome such as patient satisfaction. This charge nurse described how it may be unfair, however, to consistently allocate patients with challenging interpersonal characteristics to a certain staff nurse despite that staff nurse having a personality or interpersonal skillset perceived as appropriate for the patient. A consistent assignment of patients with certain personality characteristics may result in an inequitable experience of patient care which can be perceived as unfair to staff nurses.

One final example reiterates the complexity around decisions related to considering personality in the context of a challenging patient. One charge nurse described this by stating:

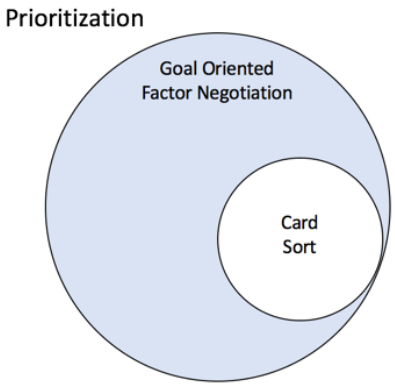
> So there are, you know, patients that are difficult, and some nurses that might have a personality that would do better with them. And, like, if it comes down to making a decision, I'll use that, but I don't really think that, like, just because maybe your personality isn't the best for a certain patient, you should get out of having to deal with that patient. (F12-5)

These examples identify how charge nurses both consider and do not consider personality and when they do, describe considering it in different ways when developing the nurse-patient assignment.

Factor Negotiation Summary.

Analysis of the interviews reveals variation in the way charge nurses considered various factors. This section serves to provide more insight into the prioritization and decision-making of charge nurses related to the development of the nurse-patient assignment. Specifically, this section provides insight into how charge nurses differentially consider and prioritize factors including nurse experience, nurse preferences, nurse personality, and nurse safety in the context of pregnancy.

Card Sort.



The card sort activity provides further insight into how charge nurses prioritize specific factors when developing the nurse-patient assignment. It specifically focused on the needs and preferences of patients and nurses.

The card which was ranked most frequently as the highest priority was that charge nurses considered both staff nurse and patient priorities but that ultimately patients were prioritized over nurses (Table 3). This was described by a charge nurse who described their choice explaining "we always have to look both side, nurses and the patient, but our goal—our main goal is to keep our patients safe, so that's the reason why." (R6-1) Another charge nurse stated: "That is in a nutshell exactly how I make an assignment." (R9-4) This card was chosen by 15 of the 18 charge nurses as most characteristic of how they develop the nurse-patient assignment. There were, however, three charge nurses who conveyed that patients were their highest priority selecting the corresponding card. One of these charge nurses stated "…like I said, it all comes down to the patient… you know,

there are certain extraordinary circumstances, but as far as like needs of the staff nurse, like I don't—I don't know. I don't feel like you have any that should—like you're getting paid to be here." (R9-1) This sentiment was shared by two other charge nurses, one of whom stated:

> That's what we're here for. We're here for the patient. We have to consider their—what's—what are they here for…what are their priorities? This is service. Despite what people say, we are a service-driven profession. I've said it for 100 years, cuz I've been here 100 years, but you are here. You're providing a service, and your service is to help the patient, to make them better. That's what we're here for. I'm not saying we're not professionals. I'm not saying we're subservient. I'm just saying this is—you're providing a service and the service is to the patient, and it's a service-driven industry. Despite what people say, that's what it is. That's what it is. (R6-5)

While the three charge nurses that ranked the patients as their singularly highest priority were the minority, they sounded confident and unequivocal with their rationale. They also worked across multiple units, so it was clear that this was not representative of a predominant sentiment within the culture of one unit but rather the perspective of charge nurses who view the role of staff nurses in a specific way. Also of note, of these three, one was in their late twenties with less than a year of experience in the charge role and one of the others was in her late fifties with more than 5 years of experience in the charge role. It is not clear that these perspectives were associated with time as a charge nurse or age either.

Table 3

Card Sort Data

	1st	2nd	3rd	4th	5th
both staff nurse and patient are considered but patients are considered the highest priority	15	3	0	0	0
patients' needs and preferences are considered the highest priority	3	14	1	0	0
staff nurse and patient needs and preferences are equally prioritized	2	0	10	6	0
both are considered but staff nurses' considered the highest priority	1	1	2	6	8
staff nurses' needs and preferences are considered the highest priority	0	0	2	6	10

In summation, the results of the card sort activity appear to mirror the sentiments communicated throughout the interviews including the stated goals. This overall sentiment reflects a general consideration for both patients and staff nurses, however, overall or in circumstances where conflicts arise, the patients are the overall priority.

Summary of Results

The analysis of the data served to address all the aims of the study which included describing charge nurses' perspectives on the development of the nurse-patient assignment and charge nurses' perspectives on the factors that influence nurse-patient assignment allocation decisions. These perspectives were organized within the Donabedian Framework categories of Process, Structure and Prioritization. Each of these sections served as organizational conceptual elements for how charge nurses develop the nurse-patient assignment. Moreover, they provided a framework from which to identify and organize the similarities and differences evident among charge nurses with respect to how they develop the nurse-patient assignment. These similarities and differences were organized into these categories in the form of themes and sub-themes.

There were five themes which included Information Gathering and Making the Assignment within the category of Process, Factor Complexity, Care Delivery Experience and Assignment Restraints within the category of Structure, and Goal-Oriented Factor Negotiation within the category of Prioritization. Information Gathering identified how all the charge nurses partook in specific practices to collect specific information to direct the development of the nurse-patient assignment. Making the Assignment served to highlight how all the charge nurses articulated a structured conceptual approach to how they developed the nurse-patient assignment. The theme of Care Delivery Experience identified how charge nurses considered factors to understand the experience of staff nurses' delivery of care. Finally, Goal-Oriented Factor Negotiation identifies how charge nurses constructed their nurse-patient assignments to align with their respective goal or goals.

Despite these common themes there was also diversity that existed among the approaches of charge nurses identified by sub-themes. The sub-themes within the theme of Information Gathering are Information Sourcing and Information Selection. These two highlight how charge nurses referenced different resources when collecting information to inform the development of the nurse-patient assignment and different information from those sources. The two sub-themes within Assignment Making are Assignment Making Strategy and Goal(s). The sub-theme of Assignment Making Strategy outlines how the nature of conceptual approaches that charge nurses employ to develop the nurse-patient assignment differ. Similarly, the sub-theme of Goal(s) identified that charge nurses considered six different types of goals and that they considered different number of goals. The theme of Factor Terminology was identified within the discussion of all factors. This

theme identified how charge nurses defined and used terminology differently when referring to factors related to the nurse-patient assignment. Within the theme of Assignment Restraints is Assignment Restraint Consideration which outlined how charge nurses described considering certain factors, identified as assignment restraints, differently when developing the nurse-patient assignment. Finally, within the theme of Goal-Oriented Factor Negotiation the sub-theme of Factor Negotiation provided further detail into how charge nurses prioritize factors. The sub-theme of Factor Negotiation provided further detail into how charge nurses prioritize factors. The card sort was then outlined which identified that 15 charge nurses prioritized the same card as their highest priority which identified that charge nurses considered both staff nurses and patients but ultimately prioritized the patient. In contrast, three charge nurses selected the card as their highest priority which identified that they only considered patients as their highest priority.

The identified themes and sub-themes within the categories of Process, Structure and Prioritization provide a context from which charge nurses experience of the development of the nurse-patient assignment can be better understood. This understanding provides added insight into the complexity of the process of the development of the nurse-patient assignment and both similarities and differences between charge nurses. This serves as a foundation from which to better characterize, discuss and inform the way nurse-patient assignments are developed in adult inpatient medical-surgical settings.

Chapter V

Discussion

Introduction

The challenge of optimally organizing nurse-patient care relates to the complexity and unpredictable nature of healthcare environments and the lack of evidence to inform nurse-patient care organization strategies (Birmingham, 2010 Jiang, Li, & VanderMeer, 2016; Pappas, Davidson, Woodard, Davis, & Welton, 2015; Punnakitikashem, 2006). One element of the organization of nurse-patient care in adult inpatient medical-surgical units involves the development of the nurse-patient assignment. Little is known about the perspectives of nurses responsible for the organization of nurse-patient care through the development of the nurse-patient assignment (Allen, 2012; Swiger, Vance, & Patrician, 2016).

The importance of an improved understanding of how nurses organize the delivery of patient care through the development of the nurse-patient assignment is highlighted by literature asserting "that instead of increasing nurse-patient ratios, clinicians' efforts to improve patient safety should rely on more efficient and effective nurse-patient assignments" (Allen, 2015). Sir, Dundar, Steege et al., (2015) reiterate the need for improved strategies stating that "existing tools and approaches for supporting patient-assignment decisions fail to account for variations in nurse capacity and response to work demands and are therefore somewhat limited in their application to a specific set of staff." Research providing insight into how nurse stakeholders understand and approach the development of "efficient and effective nurse-patient assignments" may serve to inform strategies. The value of such efforts is reinforced by the Joint

Commission which called for improvements in staffing effectiveness specifically identifying "input from clinical staff" to facilitate the assessment and continual improvement of staffing effectiveness (The Joint Commission, 2014).

This investigation sought to better understand the experience of charge nurses' development of the nurse-patient assignment. Specific attention was paid to the process by which charge nurses develop the nurse-patient assignment, the factors they consider, and how they prioritize them when developing the nurse-patient assignment. Limited research describes the process of developing the nurse-patient assignment and conceptualization of factors from the perspective of charge nurses in adult-inpatient medical surgical units (Allen, 2015; Cathro, 2013; van Oostveen, Braaksma, & Vermeulen, 2014). This investigation provides insight into the steps that charge nurses engage in to develop the nurse-patient assignment, the factors they consider and how they consider them.

The following discussion is organized around a discussion of the key findings presented within each element of the conceptual framework: Process, Structure and Prioritization. They will be contextualized both in the practice environment and compared to existing literature. This will be followed by a discussion of the implications for practice and future research.

Process

Charge nurses described that the development of the nurse-patient assignment involved gathering information and applying a specific conceptual approach. Despite these common practices identified by the themes of Information Gathering and Making the Assignment respectively, there was variation identified within each. Charge nurses

would collect information from different sources and take note of different types of information from these sources. Moreover, their conceptual approaches varied as well as their respective goals.

Since process can influence outcomes, this raises questions as to the relative effectiveness of each approach. For example, are all the described processes equally effective at optimizing outcomes such as satisfaction, safety or fairness? More specifically, do the data charge nurses collect, the sources they collect it from and how they consider them impact their ability to achieve their stated goal? In addition, results identifying that charge nurses consider numerous and different goals raise practical, ethical and philosophical questions about how many and what goals they should be considering and how they should be considering them in relation to one another when developing the nurse-patient assignment. Furthermore, the relevant field of workflow studies investigates the "pattern, frequency [and] duration of [nurses'] activities" which serve as a valuable lens through which to consider nurses processes for their development of the nurse-patient assignment (Cornell et al., 2010). For example, an understanding of the pattern of data collection of charge nurses when developing the nurse-patient assignment may serve to reveal ways to improve efficiency. Likewise, the consideration of how charge nurses synthesize and integrate into their nurse-patient assignment construction the workflow of nurses on their unit may also serve to inform research and strategy.

Overall, these questions speak more broadly to what best-practice will consist of related to the development of the nurse-patient assignment. This section will highlight the

significance of the common and varying practices with respect to the process of developing the nurse-patient assignment.

Information Gathering, Sourcing and Selection.

The investigation into the process of the development of the nurse-patient assignment included inquiry into the steps that extended beyond just the mechanics of matching nurses and patients. Allen (2012) describes that "no source actually described the nurse-patient assignment process" and that there is "considerable uncertainty about the steps of the nurse-patient assignment process." Allen (2012) identified that charge nurses "divided the patients into groups, assigned the nurse to a group of patients, and reviewed/changed the assignment" focusing primarily on the more conceptual stage.

Specific attention was paid in this investigation to solicit descriptions of all activities that charge nurses engaged in to develop the nurse-patient assignment including steps that informed the process. This builds on the work of Allen (2012) by providing more context with respect to the steps that precede the process of matching nurses with patients. This investigation also provides further insight into the conceptual stage of 'making the assignment' by providing added detail into the descriptions of charge nurses' decision-making.

This provides value in several contexts. First, with the aim of developing a best practice approach to the development of the nurse-patient assignment, this insight provides a foundation for more informed and targeted research. In addition, charge nurses across units described the aim of maintaining consistency between charge nurses with respect to the development of the nurse-patient assignment. This aim is driven by the assumption that there are certain approaches that are more effective than others with

respect to achieving their goals. If this is an aim, it may serve these charge nurses to, as a unit, develop a process with more clarity regarding what information they should select and where to source it from. The value of a strategy such as this in facilitating the aim of consistency is highlighted broadly in the variation in approaches described by charge nurses. More transparency regarding each charge nurse's approach to the development of the nurse-patient assignment, evidenced-based education, mentorship and regular structured communication between charge nurses and management may serve as a means of developing and more consistently implementing unit-based strategies that are believed to optimize outcomes.

Making the Assignment and Assignment Making Strategy.

Charge nurses described their conceptual approach and their goals when developing the nurse-patient assignment. Their descriptions revealed shared and varying practices. Shared practices included the intentional consideration of gathered information with specific shared aims where tools were implemented to facilitate the achievement of goals which revolved around nurses and patients and concepts of safety, fairness, and satisfaction.

Despite the shared aspects of their approach there were specific points of variation. Elements of variation related to their strategic approach to the synthesis of factors. This involved whether they adopted a strategy where factors were prioritized, employed randomness or blinding of nurse names and then ultimately, if they adopted a prioritization strategy, how they synthesized specific factors when developing the nurse-patient assignment. Charge nurses also described using different tools to develop the

nurse-patient assignment including both unit-driven frameworks and organizational aids aiming to achieve different numbers of goals.

This investigation builds on the work of Allen (2012) by capturing and presenting the complexity and variation of the conceptual approaches of charge nurses. This insight raises questions with respect to whether this variation results in the development of different nurse-patient assignments and how this potential variation may influence outcomes such as patient safety. More specifically, it identifies potential value in investigating if certain conceptual approaches, tools or processes serve to develop nurse-patient assignments associated with improved outcomes. In the absence of best practice guidelines, charge nurses may benefit from discussions of their conceptual approaches to the development of the nurse-patient assignment and efforts to strive to develop strategies that optimize the development of nurse-patient assignments that achieve specific goals. Efforts such as these may provide value considering research illustrating that there are more and less effective ways to organize the delivery of care to achieve specific outcomes.

Goal(s).

Charge nurses in this investigation identified six goals when developing the nurse-patient assignment. These include safety, satisfaction, and fairness as they relate to nurses and patients. Limited research investigates and describes the goals of charge nurses in the context of developing the nurse-patient assignment.

Allen (2012) identified the overarching term of "best care" as a "complex, multi-focal" purpose of charge nurses when developing the nurse-patient assignment best described as the "synergistic interaction of" the domains of the patient, environment and

nurse. This investigation affirmed findings of Allen (2012) with respect to charge nurses' consideration of factors including safety, fairness and satisfaction, while offering more perspective into how charge nurses describe considering different goals and different numbers of goals.

This raises questions with respect to the significance of charge nurses developing the nurse-patient assignment with the aim of achieving different goals. Stakeholders on adult medical-surgical units may benefit from efforts to solicit more insight from charge nurses with respect to the consideration of multiple goals, the significance of considering different goals and if there are more and less effective means of negotiation multiple goals. This may serve to provide more insight into what goals they believe charge nurses should be considering which has potential to affect how the nurse-patient assignment is developed. Discussions of this nature may serve to provide charge nurses with further insight into both what goals may be most beneficial to target and how to prioritize and negotiate between them when goals in general but specifically when they may conflict.

Structure

Charge nurses described the factors that they considered when developing the nurse-patient assignment. They identified factors organized in the groups: Patient, Nurse, Environment, Ratio, Administration, Family and Other. The factors charge nurses collected varied based on their respective priorities and unit culture. The types of factors that charge nurses described collecting and considering were corroborated by previous investigations (Allen, 2015; Mullinax, & Lawley, 2002; Oostveen, Braaksma, & Vermeulen, 2014).

The analysis of factors charge nurses identified highlighted the complexity of developing the nurse-patient assignment, the unique nature of factors collected and how they were leveraged to inform the development of the nurse-patient assignment. The number, diversity and specificity of factors served to characterize different elements and dynamics of the inpatient medical-surgical environment. More specifically, these factors served to provide charge nurses with insight into staff nurses' experience of providing care to each patient. The type and nature of these factors served to inform charge nurses' informed development of the nurse-patient assignment. Similarly, there were aspects including the unit's budget and managerial role as they related to the development of the nurse-patient assignment that could change charge nurses' approach to the development of the nurse-patient assignment.

Overall, this section identifies the importance of the identification and collection of factors that inform the nurse-patient assignment. Charge nurses may benefit from the identification of specific factors that serve as reliable and accessible indicators for the dynamics and characteristics that they believe best inform the development of the nurse-patient assignment. Likewise, the adoption and clarification of shared language with respect to factors that inform the development of the nurse-patient assignment may serve to improve clarity of communication and translate to more informed charge nurse perspectives.

Care Delivery Experience.

The factors charge nurses gathered provided them with insight into the experience of staff nurses' delivery of care. The value of this perspective is reinforced by Sir, Dundar, Steege et al. (2015) who discuss the importance of understanding the concept of

the experience of patient care delivery as a means of developing equitable assignments. They identify that even if "two patients [have] exactly the same classification by PCS [patient classification system], patient acuity classification might result in very different perceived workload for an individual nurse" (Sir, Dundar, Steege et al., 2015). Sir, Dundar, Steege et al., (2015) utilized the responses of 36 nurses on six point Likert scales to assess "the impact of patient acuity indicators on their perceived workload" and used this data to inform their model which develops nurse-patient assignments.

This investigation builds on research underscoring the value of understanding the experience of delivering patient care by highlighting how charge nurses describe considering factors when developing the nurse-patient assignment. This raises questions with respect to what factors serve to best inform the experience of care delivery for staff nurses, and how they can be assessed and integrated into the development of the nurse-patient assignment.

Charge nurses' development of the nurse-patient assignment may benefit from efforts to better understand each staff nurses' experience of patient care delivery. This may serve to provide more perspective to charge nurses as they make allocation decisions given literature identifying how staff nurse experience patient care delivery differently. Charge nurses may also want to more consistently solicit the perspectives of patients and family members' experience of care as a means of more fully informing allocation decisions aiming to develop the best "fit" as one charge nurse described.

Factor Terminology, Meaning and Communication.

The value of effective teamwork and clear communication in clinical settings is identified in the literature (Beckett, & Kipnis, 2009; Leonard, Graham, & Bonacum,

2004; Rutherford, 2008). Rutherford (2008) specifically identifies that "a standardized nursing language should be defined so that nursing care can be communicated accurately among nurses and other health care providers. Once standardized, a term can be measured and coded [facilitating the development of] evidence-based standards".

Charge nurses identified that they communicated with other members of the healthcare team about diverse and complex concepts to inform the development of the nurse-patient assignment. Some of these concepts included patient acuity, workload, personality, and fairness among others. They described how they rely on obtaining accurate assessments of these and other factors to best inform how they develop the nurse-patient assignment.

Despite the complexity of these terms and importance of understanding and communicating them well none of the units implemented evidence-based measures to capture or characterize these or other factors. More specifically, the interviews revealed that charge nurses were using different terminology between and within units. Even in instances when charge nurses on the same unit used the same terminology they, at times, defined or characterized that terminology differently.

If nurses are using the same terminology in different ways this may contribute to a mischaracterization of a given factor or dynamic. This lack of clarity may result in the development of the nurse-patient assignment that does not reflect the goals of the charge nurses. This raises questions with respect to how communication may influence the development of the nurse-patient assignment and whether efforts to improve clarity may serve to benefit charge nurses' development of the nurse-patient assignment. The development of shared terminology with clear definitions and established communication

procedures may serve to improve the accuracy with which charge nurses communicate and synthesize information facilitating the development of nurse-patient assignments that reflect their goals.

Assignment Restraints and Assignment Restraint Considerations.

One of this investigation's aims included describing factors that influence nurse-patient care allocation decision-making. The interviews identified how the budget and the nurse manager can influence the decision-making of charge nurses. The budget was identified as influencing staffing decisions that charge nurses made for the next shift. Similarly, nurse managers were at times identified as influencing decision making both related to the budget and by providing guidelines and input about specific assignment considerations. The factors of the budget and administration were also identified in other studies, however, in the context of overall budgeting, staffing and scheduling prior to the development of the nurse-patient assignment (Allen, 2012; Punnakitikashem, 2007). This investigation provides insight into how the nurse manager and the budget can not only influence charge nurse decision making on a day-to-day basis but also influence decision making in ways that cause charge nurses to deviate from their goals. This raises questions as to the dynamics between managers and charge nurses and how budget and staffing decisions can affect charge nurse perceptions of the safety of nurse-patient assignments.

Prioritization

The final aim of this investigation was to identify factors that charge nurses find to be the most and least important and describe how they prioritize these factors. The interviews revealed that not all charge nurses described an approach with an explicit prioritization strategy. Among the charge nurses that described prioritizing factors there

were shared and varying elements to this approach. One common element among charge nurses included the prioritization of factors in a manner that they believed would facilitate the achievement of their goals. There were instances among the charge nurses, however, where they prioritized factors differently to achieve their goals.

Goal-Oriented Factor Negotiation and Factor Negotiation.

Most charge nurses described a prioritized approach to the consideration of factors. Among the charge nurses that described a prioritized approach, there was variation with respect to how they prioritized factors. Patient acuity, for example, was considered by all the charge nurses, however, it was the highest priority for some charge nurses whereas it was not for others.

Limited investigations have sought to characterize how charge nurses prioritize factors. Previous investigations have held focus groups and conducted interviews as a means of developing Likert scale assessment tools to identify and develop a ranked prioritization of factors (Bostrom & Suter, 1992; Oostveen, Braaksma, & Vermeulen, 2014). Both investigations identified acuity as either the highest priority or one of the most highly prioritized factors, however, they also identified variation among charge nurses with respect to the prioritization of factors.

This investigation builds on previous work by providing descriptions that highlight the complexity and variation of decision-making and prioritization of factors by charge nurses when developing the nurse-patient assignment. The detailed descriptions offer insight into how factors are considered in a goal-oriented manner with an appreciation for the experience of providing care and that prioritization is not an essential element of the development process nor is there unanimity among those that prioritize

factors with respect to how factors should be prioritized. The material impact of these different conceptual approaches on nurse and patient outcomes has yet to be fully explored.

Card Sort.

The card sort activity provided perspective into the relative prioritization of two of the factors considered by charge nurses when making the nurse-patient assignment: the nurse and the patient. The card sort activity identified that 15 of 18 charge nurses considered nurse and patient needs and preferences when developing the nurse-patient assignment but that patient needs were the ultimate priority. In contrast, three of the 18 charge nurses identified that they considered only patients' needs and preferences when developing the nurse-patient assignment. This affirms the results of other investigations with respect to the prioritization of factors when developing the nurse-patient assignment in that patient and nurses are identified as high priorities by most nurses (Bostrom & Suter, 1992; Oostveen, Braaksma, & Vermeulen, 2014). This investigation provides further perspective, through the card sort activity and associated charge nurse descriptions, with respect to the variation in prioritization of nurses' needs and preferences compared to patients.

Ethical Considerations

Ethical aspects of nurse-patient assignments can be considered in three contexts. The first involves the relationship between nurses, the second involves the relationship between patients, and the third involves the relationship between nurses and patients. With respect to the relationship between nurses, there are care allocation strategies that can raise ethical issues with respect to fairness between nurses. For example, is it fair for

a charge nurse to allocate patients with a lower acuity or workload to a nurse because they are friends? Charge nurses identified this, and other forms of bias, occurring in their assignment development practice or the practice of others. Likewise, is it fair to always assign more acute patients or patients with higher workload to more experienced nurses? Charge nurses identified different assignment allocation strategies or patterns associated with experience and personality which were identified as potentially unfair.

With respect to the relationship between patients, the charge nurse is faced with ethical issues regarding how to allocate resources most appropriately. One example of this ethical challenge is with respect to the allocation of scarce resources. Persade, Wetheimer and Emanuel (2009) discuss different strategies for approaching the allocation of scarce resources all of which they describe have their respective advantages and disadvantages. For example, does a charge nurse allocate more experienced staff nurses to the patients who are most "sick" ("Favouring the worst-off: prioritarianism") or should more experienced nurses be allocated to the youngest patients ("youngest first") or in a lottery fashion ("treating people equally") (Persade, Wetheimer, and Emanuel, 2009)? This dilemma revolves around research identifying that certain nurse characteristics such as education or experience may be associated with higher quality of care or better outcomes. Given this research, how should charge nurses negotiate ethical decision-making with respect to the allocation of scarce human resources?

Finally, with respect to the relationship between patients and nurses, issues can arise when deciding whether to honor a nurse's request not to care for a patient or to make some other assignment modification that may be associated with poorer patient outcomes. This raises questions with respect to issues such as continuity of care and how

it is considered in the context of other factors. Thus, ethical issues are raised with respect to how one negotiates nurse and patient priorities when they conflict.

Education, Mentorship and Charge Nurse "Retreat"

The semi-structured interview guide included a section on education and mentorship. These were included to gain more insight into charge nurses' preparation for the development of the nurse-patient assignment. These questions also served to provide a better understanding of potential factors shaping their approach to the development of the nurse-patient assignment.

Charge nurses identified that education and mentorship were limited. Charge nurses also described that they did not generally believe that education and mentorship were impactful with respect to how they approached the development of the nurse-patient assignment. Charge nurses overwhelmingly communicated that they believed the best way to improve their assignment development was through experience in the role. Charge nurses expressed mixed opinions about the potential value of more formalized educational preparation being beneficial for their nurse-patient assignment development.

One element of education and mentorship described by charge nurses related to a "charge nurse retreat". Only a few charge nurses across two of the units identified that they participated in a charge nurse retreat. The charge nurses that participated provided limited insight into what the retreat involved. The insight provided, however, did provide support for various aspects of the findings. For example, the retreats consisted of discussions regarding strategic approaches to the development of the nurse-patient assignment. These discussions broadly shaped normative practice on these units such as the implementation of a given scale. They also identified, however, that despite the

practice strategies developed that there was variation with respect to how these strategies were implemented by the charge nurses in practice.

Limitations

There are several limitations of this investigation. First, the charge nurses interviewed were all selected from one hospital. It is unclear to what degree their reflections on the development of the nurse-patient assignment are reflective of only this hospital or health system. There may be differences related to how charge nurses develop the nurse-patient assignment states with different policies affecting aspects related to the nurse-patient assignment (i.e. California) or even between institutions of different sizes, magnet status or with different health system cultures. In addition, these interviews only reflected interactions with each charge nurse at one point in time. Further interactions may have facilitated clarification of dimensions that remain unclear or led to more full or different contextualization of their approaches to the development of the nurse-patient assignment. Another limitation is the degree to which charge nurse descriptions are reflective of their or other charge nurses actual approach in practice to the development of the nurse-patient assignment. Finally, as this investigation identifies, the nurse-patient assignment is influenced by or affects other stakeholders including patients, staff nurses, nurse managers, clinical nurse specialists and physicians; however, this investigation only sought the perspectives of charge nurses. Insight from other stakeholders may serve to provide a more full or different understanding of the development of the nurse-patient assignment.

Implications for Practice

The nurse-patient assignment serves as one strategy to organize the delivery of nurse-patient care. Some of the significance of investigating the nurse-patient assignment revolves around two assumptions. The first assumption is that the manner in which the nurse-patient assignment is constructed can influence outcomes. The second assumption is that charge nurses may be constructing nurse-patient assignments in less than optimized ways and that a better understanding of the nurse-patient assignment may facilitate the development of nurse-patient assignments that produce better outcomes. This investigation, however, did not investigate the influence of the construction of nurse-patient assignments on outcomes and limited research identifies how and to what extent the construction of nurse-patient assignments precisely influences outcomes.

The literature does identify, however, how specific characteristics of the inpatient clinical environment that the nurse-patient assignment influences are associated with outcomes. One of these elements associated with outcomes and influenced by the nurse-patient assignment are nurses. More specifically, the nurse-patient assignment directs which nurse is responsible for providing care to which patient. Curley (1998) published a paper: "Patient-nurse synergy: optimizing patients' outcomes" which speaks to the significance of efforts to align nurse competencies with patient needs as a means to optimize outcomes. Limitations in research prevent charge nurses from making the most informed decisions with respect to how to align nursing care in a way to ensure the highest likelihood of optimal outcomes.

Welton (2016) identifies that "the ability to measure and understand how nurses affect the care and outcomes of each patient will change our thinking about nurse staffing from a ratio orientation to one where each patient will be matched with the best nurse

given the patient's needs and available nursing resources." Welton (2016) identifies the potential to improve the allocation of nursing human resources to patients by developing unique nurse identifiers, which can be linked to patient electronic medical records, and analyzed to identify relationships that can be leveraged to improve the delivery of nursing care.

The results of this study provide insight into the process of the development of the nurse-patient assignment and provide potential opportunities to inform interventions for practice environments. The discussion of the implications for practice will involve an outline of three distilled points from the investigation followed by eight actionable items. The distilled points serve as a broad frame from which to characterize the findings and the actionable items a more specific delineation of practice-oriented recommendations.

Distilled Points.

Three points serve to crystallize the findings of the investigation. These points broadly reflect charge nurses' approach to the development of the nurse-patient assignment, their evaluative strategy and opportunities for intervention. They are as follows:

1. Charge nurses between and within units use different processes to develop the nurse-patient assignment with limited evidence-based practice guiding their strategies and no ethics training tailored to the development of the nurse-patient assignment.
2. Charge nurses did not identify any mechanism to assess the efficacy of the nurse-patient assignments that they developed.

3. This investigation identifies opportunities for practice interventions related to the development of the nurse-patient assignment related to the clarity of communication and ethical decision-making.

Actionable Items.

Each of the eight actionable items that follow relate to data-driven points identified through the analysis. This section is organized by outlining each of the eight data-driven points followed by the actionable item.

1. Charge nurses' described variation with respect to their process for the development of the nurse-patient assignment within and between units.

Evaluate the value and impact of patient care allocation strategies tailored to each unit's patient population and work environment.

2. Charge nurses identified goals that were not related to specific outcomes, different goals and different numbers of goals.

Charge nurses should be able to identify the goals that their nurse-patient assignment strategy is design to achieve with sufficient specificity such that they can be assessed. The identification of specifically defined "outcome-focused" goals will serve to facilitate the assessment of the efficacy of strategies. For example, in this investigation, charge nurses identified goals such as fairness, satisfaction and safety, which are broad. An outcome-focused example might include the development of nurse-patient assignments tailored to optimize patient safety defined by a quantifiable outcome such as patient falls. This investigation does not aim to identify which goal or goals should be selected but rather highlights how the lack of specificity with respect to the delineation of goals presents challenges with respect to the assessment of efficacy.

3. Charge nurses reported no formal mechanism to assess the efficacy of assignment development strategies in achieving their identified goals.

Unit stakeholders should work to develop a means to assess the efficacy of each nurse-patient assignment development strategy in achieving identified "outcome-focused" goals.

4. Charge nurses identified limited or no evidence-based practice integrated into their strategies.

Unit stakeholders should consider the integration of research-identified strategies into nurse-patient assignment development. Although limited research exists regarding the nurse-patient assignment, research does exist which charge nurses could integrate into their strategies or use to inform their strategies. Research has not identified whether the integration of research related to the nurse-patient assignment such as the synergy model, ethical frameworks or workload assessment tools will have a material effect on outcomes, however, these strategies may be beneficial.

5. Charge nurses did not report any ethics training provided to them that was tailored to the development of the nurse-patient assignment.

Charge nurses may benefit from the development of an evidence-based educational intervention and ongoing mentorship inclusive of ethics training.

6. Charge nurses did not identify any formal process for assessing the congruence of their described approach with their actual construction or design of nurse-patient assignments in everyday practice.

Unit stakeholders may benefit from an assessment of how charge nurses' described nurse-patient assignment development strategies reflect their approach to the

development of nurse-patient assignments and the nurse-patient assignments that they construct in practice.

How charge nurses describe their approach to the development of the nurse-patient assignment may not reflect their everyday practice. Charge nurses may approach the development of the nurse-patient assignment differently than they describe or approach it as they describe but construct nurse-patient assignments that do not align with their described decision-making. The identification of whether and how charge nurses' implementation of their nurse-patient assignment strategies vary from what they describe and in addition to the assessment of the efficacy of any given strategy outlined in actionable item three may serve to inform future research and practice interventions.

7. The use of different terminology related to the development of the nurse-patient assignment and the same terminology described in different ways.

The development and use of clear language consistently when communicating about the nurse-patient assignment

8. Charge nurses' assessments of factors such as acuity and workload, used to inform assignment nurse-patient assignment development, were not research-driven or consistent between charge nurses.

Investigate the material impact of the utilization of reliable and validated instruments to capture data identified by charge nurses as valuable to informing their nurse-patient assignment development strategy on outcomes.

Future Research

The findings of this investigation identify opportunities for further research. This investigation, for example, did not identify if charge nurses' varied approaches

influenced the development of the nurse-patient assignment. These varied processes and conceptual approaches may not actually result in the development of different nurse-patient assignments. Similarly, this investigation did not investigate the material effect of the construction of different types of nurse-patient assignments on outcomes.

Future research may involve the investigation of whether charge nurses construct different nurse-patient assignments given the same data, and, if they do, how and why they differ. Additionally, it may be valuable to investigate associations between the construction of any given nurse-patient assignment and specific outcomes.

Conclusion

Charge nurses' development of the nurse-patient assignment is not well characterized in the literature. The aims of this study were to explore charge nurse perspectives related to the development of the nurse-patient assignment and what factors influence the development of the nurse-patient assignment in adult inpatient medical-surgical units. The interviews explored charge nurse descriptions of their process for developing the nurse-patient assignment, what factors they considered and how they considered these factors. The interviews revealed themes and sub-themes within and between units related to charge nurses' process for the development of the nurse-patient assignment, the factors they considered, and how they considered factors. This insight provides a better understanding of the experience of charge nurse development of the nurse-patient assignment, which has implications for practice environments and identifies opportunities for future research. The implications of these insights for practice environments include ways to inform strategies which may serve to improve the organization and delivery of patient care through the nurse-patient assignment.

List of Appendices

Appendix A.

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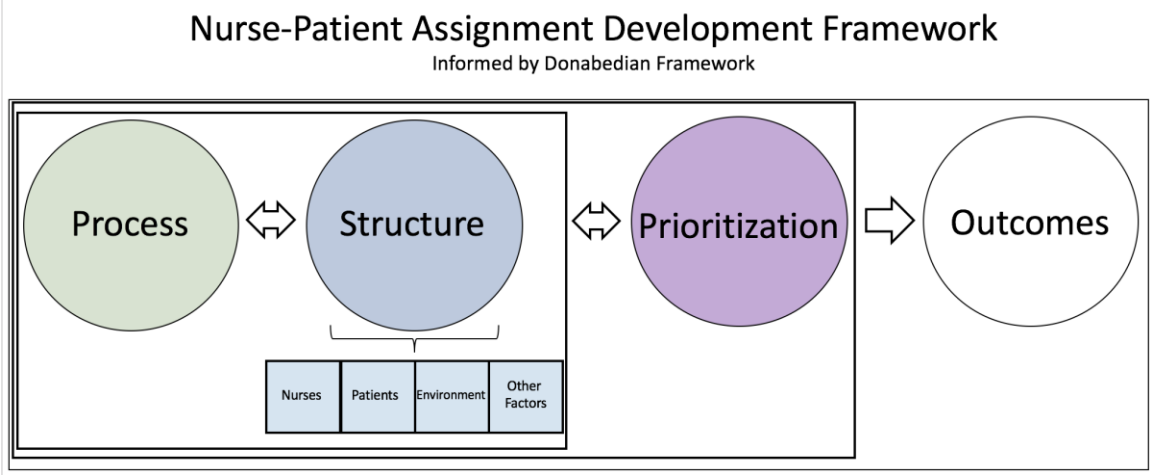
Appendix B.

Figure 1.



Appendix C.

Semi-structured Interview Script

I. Introduction

Hello, my name is Colin Plover and I will be conducting your interview. I appreciate your willingness to participate. I am a registered nurse at the Hospital of the University of Pennsylvania and a doctoral student at the University of Pennsylvania. I am conducting a study to investigate the process charge nurses use to make the patient assignments for their staff nurses. I'm interested in learning more about the steps taken, factors considered, and priorities that influence how you make patient assignments, and how you were prepared for this role.

Do you have any questions? At this point I would like to go through the process of informed consent.

II. Informed Consent

o A statement that the study involves research

This study involves research.

o An explanation of the purposes of the research

The purpose of the study involves learning more about the steps taken, factors considered, and priorities that influence how you make patient assignments, and how you were prepared for this role.

o The expected duration of the subject's participation

The expected duration of the interview is 1 hour

o A description of the procedures to be followed, including a description of the plans to record the interviews and transcribe them.

After the informed consent process that we are conducting now is finished the interview will follow. With your permission the interview will be audio-recorded. The recording is for analysis purposes only and any names or unique identifiers will be redacted when it is transcribed. Your name will not be disclosed with the results of the study. The session is completely voluntary and you may stop at any time for any reason. Please also refrain from identifying specific names of any staff members in your responses. If you do happen to identify a staff member their names will ultimately be

redacted from the transcribed document. After the interview there will be a card sorting activity which will involve you placing five cards in order describing how you approach the nurse patient assignment. Then we will finish with a brief demographic questionnaire.

o A description of any reasonably foreseeable risks or discomforts [e.g. potential breach of confidentiality]

It is not expected that there are any foreseeable risks or discomforts associated with the study. There are no specific benefits to participating.

o A description of how confidentiality will be maintained including who will see/have access to interview transcripts/audio files

Confidentiality will be maintained by not recording your name or any unique identifiers of anyone participating. Any names will be redacted from the interview transcript if they arise. The only individuals that will have access to the interviews and transcripts will be the transcription company and the study team.

o An explanation of any planned compensation, if applicable

Additionally, there will be no compensation for participation in the study.

Finally, I hope that the data provided will help to develop evidence-based recommendations for the distribution of nurse patient care in adult inpatient medical surgical units.

Do you consent to participate?
Do you have any questions before we begin the interview?

Patient Care Allocation: Role of Charge Nurse and Overall Process

I would like to begin with a few broad questions about the process you follow to make patient assignments.

Each shift patients are divided into groups and nurses are assigned to these groups of patients.

What do you call this process on your unit?

Probe: For example, patient care allocation, nurse-patient assignment, "the assignment", etc.

What is the specific title of the nurse responsible for making the ["the assignment"]?

Probe: for example, charge nurse, care team leader, nurse manager, etc.

Ok, so on your unit the _____ is responsible for making the _____

When do you start this process in your shift?

About how much time do you spend making [the assignment]?

Excellent, now I would like to change to the next section of the interview.

Patient Care Allocation: Steps of Process and Factors Involved

Now that I have a better overall understanding of patient assignment I would like to ask more specific questions about the process of making [the assignment]. For example:

How do you start this process?

Can you describe your role as the [charge nurse] in the process of making the assignment?

Probe: For example, What are the main steps or elements of the process?
What are the responsibilities of the charge nurse in the process?

Can you describe the steps in the process of making [the assignment]?

Can you describe the factors that you consider when making the assignment?

Why do you consider these factors?

Probes: How do you consider nurses in this process?

How do you consider the environment in this process?

Probe/clarify: room locations, distance between rooms, etc.

How do you consider patients in this process?

Do you consider other factors?

Do you have access to all of the information you would like to achieve your [goal(s)] when making the assignment?

If there were no practical boundaries what information would you like to know to enable you to best achieve your goal(s)/priorities related to [patient care allocation]?

Probe: For example, is there any information you would like to know about nurses, patients, the environment, or other factors that would help you allocate patient care? Why would you like to know these factors? What is significant about them?

Patient Care Allocation: Decision-making and Prioritization of Factors

Can you describe the goal or goals of this process?

Probe: are you trying to achieve one specific outcome or several outcomes through this process? Is there a specific priority or are there specific priorities?

What makes you identify these as goals or priorities?

Probe: Why are they significant?

You mentioned that you consider factors [1. _____ 2. _____ 3. _____ 4…]

Do factors ever conflict and can you describe how factors conflict?

Are all of these factors equally important?

If they are not can you describe how certain factors or elements of the process might be considered differently and why?

For example: patient priorities and nurse priorities

administrative priorities and nurse priorities

charge nurse priorities and nurse recipient priorities

Can you describe if nurses have preferences that relate to the assignment?

For example: factors that relate to patients or the unit such as type of patient or location on the unit?

Are nurses who receive patient care ever involved in the process?

Probe: Can you describe how they are involved?

How can you tell when the patient assignment worked well?

What factors do you look for when determining if patient care is allocated well?

Are these factors tracked or recorded?

Ok great, now that I have some insight into the overall process I would like to ask a few questions about how you prepared to assume this role as [charge nurse].

Charge Nurse Education, Preparation, and Mentorship

For example, can you describe the education and mentorship that was provided to you before assuming this role?

Probe: how long/how many shifts were you mentored for before assuming this role?

What evidence based practice or literature related to [the patient assignment] were you provided while being prepared to assume this role/since you've finished this role?

Can you describe whether you feel the training you were provided was sufficient to prepare you to accomplish the goals of making the nurse patient assignment?

Can you identify any ways in which the training could be improved to better prepare you to [make the nurse patient assignment] to achieve these goals?

Can you describe stressors associated with the process of developing the patient assignment?

Probe: can you describe if the process of making the assignment is ever stressful and how it is if it is?

Can you describe any ethics training as it relates to the development of the [nurse-patient assignment]?

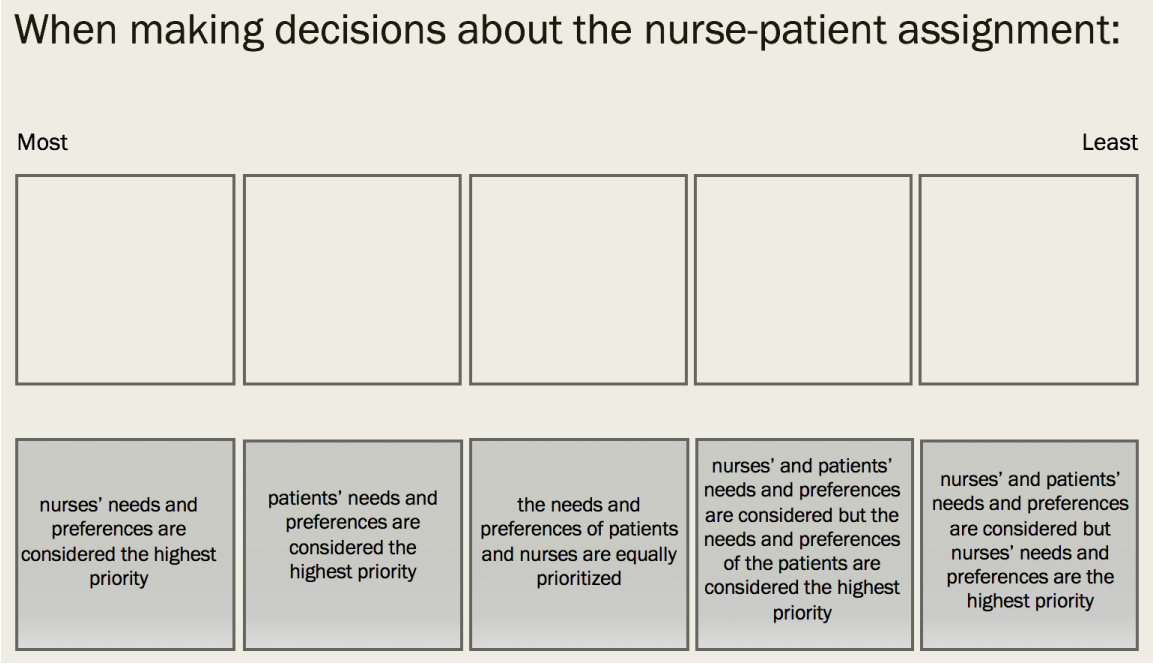
Is there anything else you would like to add about the education or mentorship you were provided that you thought could improve the process or benefit other nurses?

Appendix D.

Card Sort Materials

Please rank these from most to least characteristic of your decision-making:

- When making decisions about the nurse-patient assignment patients' needs and preferences are considered the highest priority
- When making decisions about the nurse-patient assignment nurses' and patients' needs and preferences are considered but the needs and preferences of the patients are considered the highest priority
- When making decisions about the nurse-patient assignment the needs and preferences of patients and nurses are equally prioritized
- When making decisions about the nurse-patient assignment nurses' and patients' needs and preferences are considered but nurses' needs and preferences are the highest priority
- When making decisions about the nurse-patient assignment nurses needs and preferences are considered the highest priority



Appendix E.

Demographic Form

How long have you been working as a charge nurse on this inpatient unit.

6 months to 1 year
1 year to 2 years
2 years to 3 years
3 years to 4 years
4 years to 5 years
More than 5 years

How would you identify your gender?

Male
Female
Other

What is your highest degree of education?

Associates Degree
Bachelors of Science in Nursing
Masters of Science in Nursing
Doctor of Nursing Practice
PhD
Other _____

What shift do you primarily work on?

Day
Night
Evening
Rotating

What is your age? _____

Do you have any specific certifications (BLS, ACLS, etc.) ?
_____

How long have you been working as a nurse on this floor?

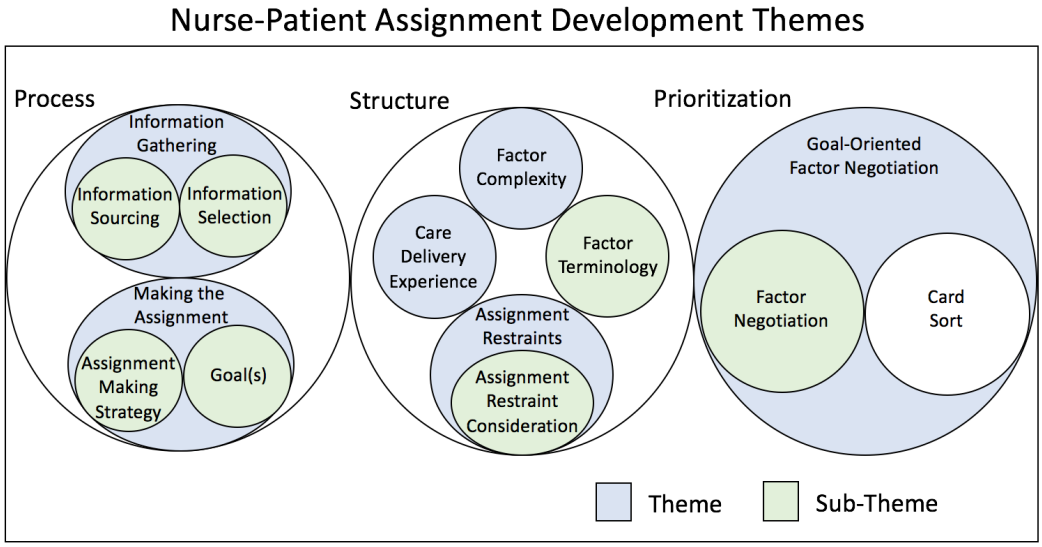
_____

How long have you been working as a nurse in any clinical setting?

_____

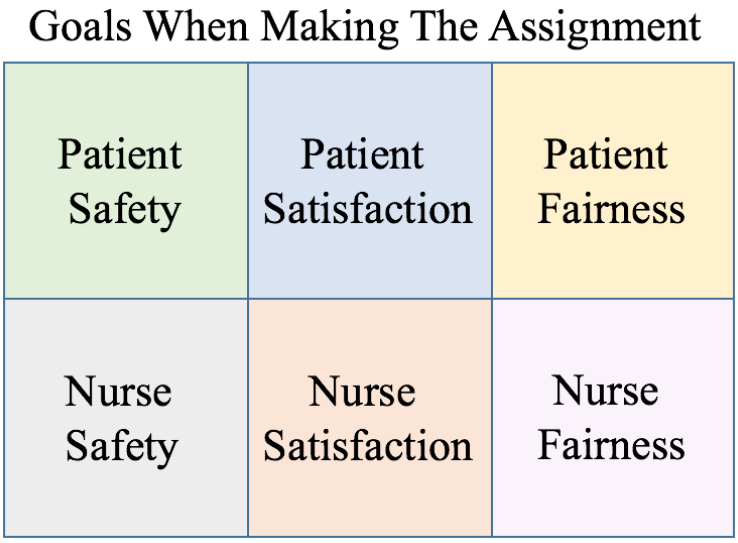
Appendix F.

Figure 2.



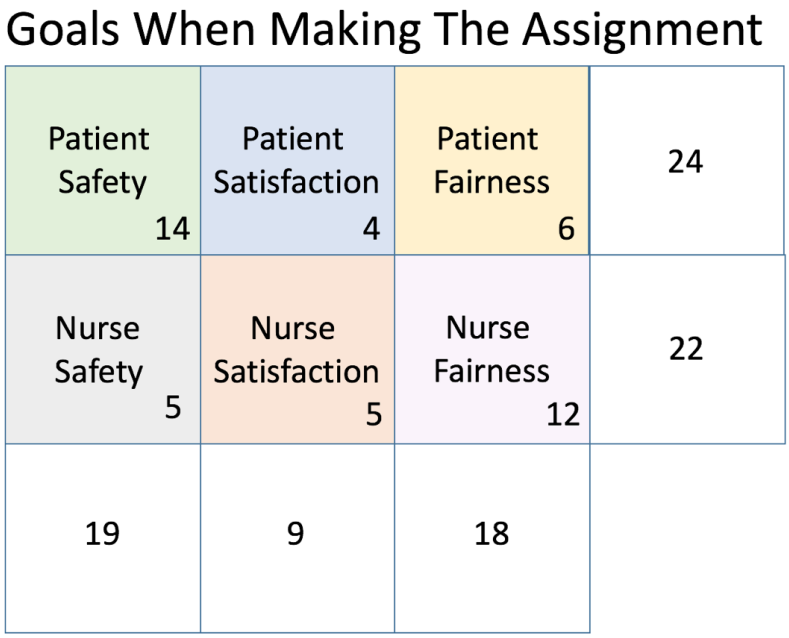
Appendix G.

Figure 1.



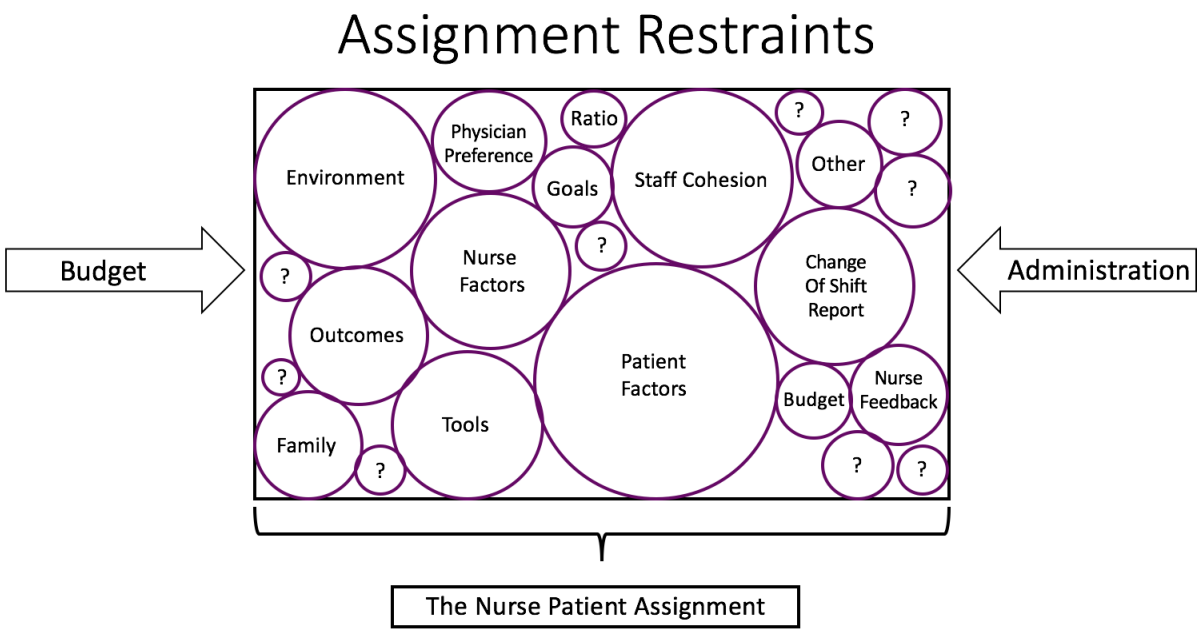
Appendix H.

Figure 5.



Appendix I.

Figure 6.



Appendix J.

Table 2.
Number of Goals Considered by Charge Nurses

Number of Goals	Number of Charge Nurses
1	4
2	5
3	5
4	2
5	2
Average = 2.6	Total 18

Appendix K.

Card Sort Data

	1st	2nd	3rd	4th	5th
both considered but patient are considered the highest priority	15	3	0	0	0
patients' needs and preferences are considered the highest	3	14	1	0	0
needs and preferences are equally prioritized	0	2	10	6	0
both considered but nurses' considered the highest	1	1	2	6	8
nurses' needs and preferences are considered the highest	0	0	2	6	10

Appendix L.

Introduction Letters and List of Adult Inpatient Medical Surgical Units

Dear

I am a Clinical Nurse on [Unit X] and a doctoral student in the nursing school at the University of Pennsylvania. My research focuses on patient care allocation as it relates to the nurse-patient assignment. I have coordinated with [the director of nursing research] and my dissertation committee and will be reaching out to the charge nurses on your floor to inquire if they would be interested in participating. I was wondering if you could provide me with a list of charge nurses on your unit.

Please let me know if you have any questions.

Best,
Colin Plover MSN/MPH, RN

Medical/Surgical Floors at "The Institution"

Dear

I am a nurse on Rhoads 4 and a doctoral student in the nursing school at the [Nursing School]. Your nurse manager informed me that you serve as a charge nurse on your floor. I am conducting research that focuses on better understanding how charge nurses approach making the nurse-patient assignment. I was wondering if you would be interested in participating in a one-hour interview to help better understand how decisions are made and what support charge nurses can be provided to better fulfill their role. We can schedule the interview at your convenience. Your participation would be greatly appreciated.

Please also feel free to reach out with any questions.

Best,
Colin Plover MSN/MPH RN

Appendix M.

Table 1.

Characteristics of Sample	*(N=18)*		
Gender	16 Female	2 Male	
Primary Shift	10 Day	7 Night	1 Rotating
Highest Degree	15 BSN	2 MSN	1 Associate
Certifications	11		
Ethics Training	0		
Formal Assessment of Quality	0		
Evidence Based Practice	4		
	Average	**Range**	
Age	37	26-57	
Years as a charge nurse	>4 years	2.5-15	
Years on current unit	7.4	2.5-15	
Years in any setting	11.6	3-18	