

EFFECTIVE COMMUNICATION OF SYSTEM-LEVEL EVENTS FOR

SYSTEM HEALTH

by

Angela Christine Brittain

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A Dissertation Submitted to the Faculty of the

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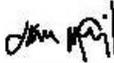
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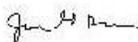
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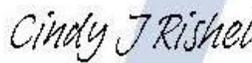
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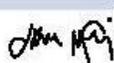
  
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Final approval and acceptance of this dissertation is contingent upon the candidate's submission of the final copies of the dissertation to the Graduate College.

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## ABSTRACT

Millions of injuries and over 400,000 deaths occur yearly in the United States (US) from preventable errors (Classen, Griffin, & Berwick, 2017; James, 2013; Makary & Daniel, 2016). The cost of preventable errors has been estimated at roughly \$20 billion per year and current statistics confirm that the US spends roughly double that of other high-income countries, despite comparable utilization rates (Papanicolaos, Woskie, & Jha, 2018; Rodziewicz & Hipskind, 2019). Most mitigating efforts have been unsuccessfully applied at the bedside without regard for hospital organization complexity (Finn et al., 2018; James, 2013; Kobewka et al., 2017; Zhang et al., 2017). Given that hospitals represent complex systems with many interacting subsystems, an understanding of preventable errors as symptomology of underlying systemic factors is lacking (Begun, Zimmerman, & Dooley, 2003; Braithwaite, Wears, & Hollnagel, 2015; World Health Organization [WHO], 2009).

The purpose of this research was to increase understanding of the perceptions of nurses and nursing leaders from magnet-designated and non-magnet-designated hospital organizations regarding what system-level events or circumstances may degrade hospital system health and compromise patient safety. This was underpinned by the *Effective System-to-System Communication Framework*, which was adapted from the *Effective Nurse-to-Nurse Communication Framework* and further informed by complexity theory (Capra & Luisi, 2014; Carrington, 2012a; Dekker, 2011; Karwowski, 2012). The sample was drawn magnet-designated and non-magnet designated hospitals in the US. Three staff nurses and three nursing leaders were recruited from magnet-designated hospitals and non-magnet designated hospitals for a total of 12 participants. Sampled participants were those whose work involves medical-surgical units or

patients in their respective organizations. The interviews were transcribed verbatim and analyzed by thematic analysis, natural language processing, and the Goodwin statistic (Goodwin & Goodwin, 1985; LIWC.net, n.d.; Morse & Field, 1995).

## **CHAPTER I: REVIEW OF THE LITERATURE**

This research builds on feasibility work done to examine the communication of organizational events (Brittain & Carrington, 2019b). This study described magnet-designated and non-magnet-designated organization nurses and nurse leaders' experiences regarding system-level events that impact hospital system health and patient safety, and ways they perceived communication regarding these factors could be improved. Here, I provide the rationale for the research study from literature regarding organizational health and communication. The significance and purpose of this study as well as research questions are also addressed.

### **Background**

Millions of injuries and over 400,000 deaths occur yearly in the United States (US) from preventable errors (Classen et al., 2017; James, 2013; Makary & Daniel, 2016). Moreover, many errors are reportedly not captured in the medical record, rendering error rates and injuries that may be significantly more prevalent than currently realized (Khan et al., 2016; Makary & Daniel, 2016; Weingart et al., 2005; Weissman et al., 2008; Zhu et al., 2011). In addition to the ultimate price to patients, the financial implications are immense. The cost of preventable errors has been estimated at roughly \$20 billion per year and current statistics confirm that the US spends roughly double that of other high-income countries, despite comparable utilization rates (Papanicolas et al., 2018; Rodziewicz & Hipskind, 2019).

Most mitigating efforts have been unsuccessfully applied at the bedside (Finn et al., 2018; James, 2013; Kobewka et al., 2017; Zhang et al., 2017). For example, efforts given to increase personal attention to detail and incident reporting have been shown as ineffective

mediators of adverse event occurrence (Panagos & Pearlman, 2017; Wegner & Neri Rubim Pedro, 2012). Panagos and Pearlman (2017) go so far as to say that the impetus of adverse events are system-level factors that allowed them to occur and *never* simply the fault of human error. Some suggest that factors that perpetuate errors should be the collaborative focus of redesign involving healthcare leadership, frontline personnel, patients and their families, and the organization as a whole (Wegner & Neri Rubim Pedro, 2012).

Research suggests that magnet-designated hospitals have as many as 6.1 fewer deaths per 1,000 patients compared to non-magnet-designated hospitals (Kutney-Lee et al., 2015). Magnet-designated hospitals are those that have met standards put forth by the American Nurses Credentialing Center (ANCC) for excellence in transformational leadership, structural empowerment, exemplary professional practice, and innovations and improvements (ANCC, n.d.). Further research regarding the variability in preventable error patient mortality between magnet-designated and non-magnet-designated hospital organizations is needed.

Complex systems are those with many interacting subsystems whose interaction gives rise to the function and purpose of the overarching subsystem. The convoluted interconnection of these subsystems renders emergent phenomena that would not have been realized if the subsystems had been working in isolation (Capra & Luisi, 2014). The many interacting subsystems and nonlinear phenomena seen in hospitals reveals their complex nature (Begun, Zimmerman, & Dooley 2003; Capra & Luisi, 2014). Extant research suggests that most interventions have not accounted for the complexity inherent in hospital organizations (Berdot et al., 2016; Finn et al., 2018; Kalisch, Landstrom, & Williams, 2009; Kirwan, Matthews, & Scott, 2013; Marvanova & Henkel, 2018; Nuckols et al., 2014; Raban & Westbrook, 2014; Starmer et

al., 2014; Woodward et al., 2010). Given that hospitals represent complex systems with many interacting subsystems, an understanding of preventable errors as symptomology of underlying systemic factors is timely (Begun et al., 2003; Braithwaite et al., 2015; WHO, 2009).

The application of regulatory mandates and linear analyses have not altered the preponderance of adverse events over the last half-century (Braithwaite et al., 2015). System-level factors such as communication hold the potential to influence staff, ethical dilemmas, patients, care quality, and the incidence of preventable errors. The application of a systems approach for research and interventional endeavors is necessary for patient safety, as such endeavors are not readily accomplished by isolated individuals (Ammouri, Tailakh, Muliira, Geethakrishnan, & Al Kindi, 2015; Braithwaite et al., 2015; Chen, Shaw, Ma, & Rhoads, 2016; Chesluk et al., 2015; Kemper, Blackburn, Doyle, & Hyman, 2013; Kirwan et al., 2013; O'Connell et al., 2018; Panagos & Pearlman, 2017; Parsons & Cornett, 2011; Pavlish, Brown-Saltzman, Fine, & Jakel, 2015; Taylor & Taylor, 2018; Wegner & Neri Rubim Pedro, 2012).

### **Complex Systems**

A complex system is one that contains many interacting parts or subsystems and whose purpose and function arises from the relationships between those parts. Each subsystem has a unique level of complexity and produces distinctive phenomena (Capra & Luisi, 2014). The amalgamation of phenomena from subsystems within a complex system yields emergent properties that would have been unattainable if the subsystems had been functioning in isolation (Begun et al., 2003; Capra & Luisi, 2014; Rickles, Hawe, & Shiell, 2007). The potential for adverse events rises as the number of interacting subsystems increases; however, this potential is mitigated by effective subsystem integration (Brewer et al., 2018; Chesluk et al., 2015). For

example, integrated electronic health records that inclusively allow healthcare workers to access appropriate information about patients' medical records, help to erode the propensity for siloed care delivery while supporting safe patient care (Chesluk et al., 2015). Complex systems theories postulate that manipulation or study of one element within a complex system potentiates unanticipated effects in other areas of the complex system (Capra & Luisi, 2014). Extrapolating on this concept, preventable errors that occur at the point of care are likely a product of system-level factors that are not apprehensible without intensive systemic evaluation. The necessity of nurse education regarding complex systems has been discussed for the promotion of organizational-level initiatives that advance the quality of care received by patients (Stalter & Jauch, 2019).

Complex systems of hospitals share unique characteristics in that they are non-linear, influenced by the environment, and include a feature of user-technology interface or human factors. These factors must be considered, as they have a direct bearing on research, interventional, and patient-care efforts. By approaching this study from a systems-level employing complexity theory, system-level impetuses of preventable errors were more readily identifiable.

### **Non-Linearity**

Change within the realm of complex systems and healthcare may be both non-linear and unpredictable (Chesluk et al., 2015; Mehta et al., 2018; Parsons & Cornett, 2011). As such, research endeavors and interventions can lead to unexpected and disproportionate outcomes (Chesluk et al., 2015). This non-linearity is cultivated by the multiplicity of shifting and dynamic factors that are present within healthcare organizations (Parsons & Cornett, 2011). When

individuals within an organization meet dynamic self-organizing changes with resistance, safety efforts are inhibited. Furthermore, resistance to positive change can weaken employee morale, leading to further detriment of patient care (Mehta et al., 2018; Woodward et al., 2010). These problematic effects can be mitigated through the cultivation of effective communication (Woodward et al., 2010).

### **Influence of Hospital Environment**

Hospital organizations' internal and external environments impact patient safety outcomes (Ammouri et al., 2015; Chen et al., 2016; Kirwan et al., 2013; Mehta et al., 2018; Rasmussen et al., 2014). This is highly contextual, as patients with similar diagnoses and demographics can have widely varied outcomes dependent upon the hospital environment they find themselves in (Mehta et al., 2018). Although some environmental factors, such as rurality and impoverishment, cannot be readily altered, research suggests that some internal factors, such as team culture and psychosocial work environment quality, are strongly associated with the prevalence of preventable errors and patient complications (Chen et al., 2016; Mehta et al., 2018; Rasmussen et al., 2014). Team culture is defined as the unrecognized beliefs and rules that drive the interactions of healthcare personnel with each other as well as patients (Royal College of Physicians, 2018). It is noted that team culture is described as difficult to change, highly complex, and an instrumental influencer of healthcare quality, nurse satisfaction, and the occurrence of adverse events (Ammouri et al., 2015; Kirwan et al., 2013; Mehta et al., 2018; Panagos & Pearlman, 2017; Perry, Richter, & Beauvais, 2018; Rasmussen et al., 2014; Woodward et al., 2010). Pertinent psychosocial factors that can impact the work environment include emotional demands related to dealing with multi-tasking, difficult decisions,

interruptions, chronic stress, and caring for ill patients (Rasmussen et al., 2014). Although organizational learning can facilitate positive culture and patient safety, entrenched hierarchical structures and siloed care delivery can stifle learning and perpetuate ethical conflicts (Ammouri et al., 2015; Chesluk et al., 2015; Edwards, 2017; Panagos & Pearlman, 2017; Pavlish, Brown-Saltzman, Fine, et al., 2015; Topaz et al., 2016; Wagner, Smits, Sorra, & Huang, 2013).

Conversely, the presence of a shared governance structure and shared mission and vision can provide an instrumental foundation for the promotion and sustenance of safety culture (Ammouri et al., 2015; Chesluk et al., 2015; Parsons & Cornett, 2011; Pavlish, Brown-Saltzman, Fine, et al., 2015; Wegner & Neri Rubim Pedro, 2012). Safety culture can be understood as the attitudes, characteristics, and actions embodied by an organization and its employees that evidence the goal of safety over other competing demands (Kirwan, Reader, & Parand, 2018). Safety cultures are multifactorial in etiology and are sustained through interdisciplinary collaboration and effective communication (Ammouri et al., 2015; Panagos & Pearlman, 2017). Specifically, feedback loops that efficiently communicate adverse event analysis back to frontline staff support learning, improvement, and a safety culture. This is possible only in environments with true leadership support and buy-in (Panagos & Pearlman, 2017). Environments that are perceived as supportive and transparent have been associated with higher levels of adverse event reporting, which can serve to illuminate pertinent issues of concern (Kirwan et al., 2013). Such environments are nurtured by leadership who can support and model changes that promote ethicality, quality care, and safety culture (Ammouri et al., 2015; McHugh & Ma, 2013; Panagos & Pearlman, 2017; Pavlish, Brown-Saltzman, Fine, et al., 2015; Rasmussen et al., 2014; Shapiro, Whittemore, & Tseng, 2014; Shekelle et al., 2011; Topaz et al., 2016; Wagner et al., 2013).

Leadership behavior, rather than spoken words alone, set the organizational tone and expose system-level priorities (Edwards, 2017; Kemper et al., 2013; Panagos & Pearlman, 2017; Parsons & Cornett, 2011; Wagner et al., 2013). When the behavior of leadership supports positive change and process implementation, patient safety is bolstered. However, the presence of poor leadership or frequent turnover of leadership have been linked to organizational effects that compromise patient safety (Ammouri et al., 2015; Parsons & Cornett, 2011).

A culture of blame is one in which scapegoats are sought for any actions that are perceived as wrong (Radhakrishna, 2015). Although awareness is growing regarding the prevailing detriment posed by the presence of blame culture, sanctions aligned with a blame mentality persist (Ammouri et al., 2015; Nicotera, Mahon, & Wright, 2014; Wiig & Tharaldsen, 2012). To date, blame culture has been associated with increased preventable errors, hindered patient safety, and encumbered communication (Ammouri et al., 2015; Edwards, 2017; Pavlish, Brown-Saltzman, Fine, et al., 2015; Woodward et al., 2010). Dr. Leape of Harvard School of Public Health has been attributed with saying that the greatest hindrance to the prevention of errors is that individuals are punished for making mistakes (Radhakrishna, 2015). In contrast, the concept of '*just culture*' is one that is used to promote open reporting of mistakes, near misses, and adverse events in order to learn from them. When an organization adopts a *just culture*, the focus can be shifted from the judgement of errors instead to the origin of them (Marx, 2019). Such environments that are characterized by trust tend toward higher levels of effective communication, organizational learning, functionality, and safety (Chesluk et al., 2015; Wiig & Tharaldsen, 2012).

## **Human Factors**

The term “human factors” (HF) denotes the needs and limitations of humans interacting with technology and machines. Pertinent HF considerations include perceptual, cognitive, motor, cultural, and psychological needs (Boy, 2011, 2017; Boy, Doule, Kiss, & Mehta, 2018).

Technological design that effectively incorporates HF principles supports users’ cognitive interactions through interface optimization (Boy, 2017). As complex systems, hospital organizations are filled with people of varying levels of function and ability (Nicotera et al., 2014). Technology-user interfaces represent the point at which humans interact with machines or computers for the purpose of completing a task (Boy, 2011). These interfaces are generally created for the perceived requirements of normative users without regard for the needs of non-normative users. An example of a non-normative user includes someone with a hearing or visual impairment. This disparity leads some to a heavy reliance on workarounds, or manipulation of a system in an unintended manner in order to complete a necessary task (Ash, Berg, & Coiera, 2004). Poorly designed systems that precipitate a substantial reliance on workarounds and inefficient use of working memory are detrimental to patient care (Chesluk et al., 2015). When humans are obliged to collect or deposit information from or to several sources, such as multiple electronic health record (EHR) screens, less working memory is accessible for other necessary tasks (Allen, 1982; Reese et al., 2017). Given the constraints of human memory to recall up to seven digits or three to four phrases, the depletion mediated by a poorly designed interface is detrimental to the delivery of patient care (Allen, 1982). This is exemplified by nurses who note that numerous EHR duplicitous charting requirements pose time constraints, decrease usability, and hold the capacity to potentiate adverse events and preventable errors (Topaz et al., 2016).

Two concepts guide this research, including communication and organizational health. Organizational health includes elements of efficiency, morale, resilience, cultural competence, adaptability, shared mission and vision, shared governance, interdisciplinary collaboration, and patient safety (Brittain & Carrington, 2019a, 2019b; Xenidis & Theocharous, 2014). Research suggests that communication is frequently tied to both the health of hospitals and patients; however, the content and methods of communication are largely unclear (Ammouri et al., Brewer et al., 2018; Panagos & Pearlman, 2017; Pavlish et al., 2015). Effective communication and organizational health have a reciprocal relationship built on trust (Brittain & Carrington, 2019a). These elements are further bolstered with interdisciplinary collaboration, autonomous self-organizing, and participatory problem-solving behaviors (Ammouri et al., 2015; Brittain & Carrington, 2019a; Chesluk et al., 2015; Ernstmann, Halbach, Kowalski, Pfaff, & Ansmann, 2017; Lawson, Caringi, Pyles, Jurkowski, & Bozlak, 2015; Pedersen & Nielsen, 2013). This, in turn, serves to bolster patient safety (Edwards, 2017; Han, Trinkoff, & Gurses, 2015; Topolski, 2009; Vogus & Iacobucci, 2016).

### **Communication**

Communication involves two or more entities exchanging information through a mutually understood system, such as signs, symbols, behaviors, or words (Communication, n.d.). In order for effective communication to occur, there must first be an information source with a message to send. This message must then be sent through a communication channel to an information receiver (Shannon & Weaver, 1964). Defining attributes of effective communication include foundational trust, accurate receipt and comprehension of a message, and continued evolution as innovative technological advancements are made (Brittain & Carrington, 2019a;

Ernstmann et al., 2017; Fairholm & Fairholm, 2000; Fridrich, Jenny, & Bauer, 2015b; Kumar, 2011; Luke, 1998; Pedersen & Nielsen, 2013). Effective communication leads to reinforced or increased knowledge of the information receiver (Brittain & Carrington, 2019a; De Meester, Verspuy, Monsieurs, & Van Bogaert, 2013; Patton et al., 2017; Singh, Naik, Rao, & Petersen, 2008).

In the workplace, the complexity of communication is compounded by policies that are unclear and the propensity of individuals to avoid conflict (Kirwan et al., 2013; Nicotera et al., 2014; Pavlish, Brown-Saltzman, Fine, et al., 2015). Resulting communication that is poor has been cited as a significant antecedent of patient harm (Ammouri et al., 2015; Brewer et al., 2018; Nicotera et al., 2014; Panagos & Pearlman, 2017; Pavlish, Brown-Saltzman, Fine, et al., 2015; Pavlish, Brown-Saltzman, So, Heers, & Iorillo, 2015; Rasmussen et al., 2014; Starmer et al., 2014). Specifically, ineffective communication serves to degrade organizational processes and relationships in addition to precipitating ethical conflicts (Nicotera et al., 2014; Pavlish, Brown-Saltzman, So, et al., 2015). These ethical conflicts are further complicated by the often divergent missions of community service, patient care, medical education, health research, profit, and religious values (Nicotera et al., 2014). Entrenched patterns of poor communication are challenging to reverse, but change efforts can be bolstered through the clear delineation of expectations, supportive relationships, and organizational processes that open communication channels (Nicotera et al., 2014; Panagos & Pearlman, 2017). When communication is clear and effective, organizational learning and goals are supported and efforts for bolstered patient safety are reinforced by a systems-approach (Kirwan et al., 2013; Nicotera et al., 2014).

## Organizational Health

The conceptualization of health pertaining to things of non-biological origin is a recent one. Entities such as organizations necessitate rejuvenation and growth in order to maintain a viable existence (Pelikan, Schmied, & Dietscher, 2014). In the setting of hospitals, the concept of organizational health (OH) includes elements of efficiency, morale, resilience, cultural competence, adaptability, shared mission and vision, shared governance, interdisciplinary collaboration, and patient safety (Brittain & Carrington, 2019a, 2019b; Xenidis & Theocharous, 2014). As organizations involve people whose behavior is in constant flux, so too OH is a process that involves continuous change and evolution (Chinn & Kramer, 2015a; DeJoy, 2005; Fridrich et al., 2015b). This is optimized when individuals, as well as the systems they occupy, are provided with autonomous flexibility that promotes adaptive self-organizing behaviors (Essén & Lindblad, 2013; Fridrich et al., 2015b). Self-organization involves the spontaneous evolution toward higher-order in the absence of outside influence (Rickles et al., 2007).

Although interdisciplinary collaboration is described in the literature as a fundamental element of positive change for safe and effective patient care, supporting efforts are lacking in many hospitals (Chesluk et al., 2015; McHugh & Ma, 2013; Mehta et al., 2018; Panagos & Pearlman, 2017; Perry et al., 2018; Rasmussen et al., 2014; Shekelle et al., 2011; Wagner et al., 2013; Wegner & Neri Rubim Pedro, 2012). Lack of interdisciplinary collaboration has been positively correlated with the occurrence of adverse events and ethical conflicts (Pavlish, Brown-Saltzman, Fine, et al., 2015; Rasmussen et al., 2014). Conversely, when active participation is paired with leadership support and effective communication, collaboration, transparency, and participatory problem-solving are fostered (Ammouri et al., 2015; Brittain & Carrington, 2019a; Chesluk et

al., 2015; Ernstmann et al., 2017; Lawson et al., 2015; Panagos & Pearlman, 2017; Pedersen & Nielsen, 2013). This reciprocal relationship serves to build knowledge and bolster OH through the advancement of strengthened relationships, organizational commitment, and fortified trust (Brittain & Carrington, 2019a; Ernstmann et al., 2017; Lawson et al., 2015; Pedersen & Nielsen, 2013). Literature suggests that hospitals with robust OH have improved nurse retention rates, patient care continuity, patient outcomes, and self-organizing adaptation (Edwards, 2017; Han et al., 2015; Topolski, 2009; Vogus & Iacobucci, 2016).

Elements of hospitals' external and internal environments have been shown to impact OH and patient safety (Ammouri et al., 2015; Chen et al., 2016; Kirwan et al., 2013; Mehta et al., 2018; Rasmussen et al., 2014). Failure to rescue rates involving patients of comparable disease states and demographics vary substantially from hospital to hospital, illuminating the nonlinear nature of mortality, which warrants a further review of environmental influence (Mehta et al., 2018). Although factors such as rurality and impoverishment represent factors that are associated with poor outcomes that are not amenable to rapid change, elements that can be addressed include team culture and psychosocial work environments, which have been associated with preventable errors, patient complications, and ineffective protocol implementation (Chen et al., 2016; Mehta et al., 2018; Rasmussen et al., 2014). Specifically, psychosocial factors involving frequent interruptions, ever-evolving tasks, and the emotional toll taken from the provision of unending care to diseased people hold the potential to negatively impact the safety and quality of patient care (Rasmussen et al., 2014). Environments that are replete with low cooperation, ineffective communication, and high patient-to-nurse ratios have been associated with higher rates of adverse events (Rasmussen et al., 2014). Such factors serve to also degrade the health of

hospital personnel (Martin, 2015). Hospital personnel are often subjected to the conflicting expectations of ethicality and efficiency while navigating the workplace with decreased autonomy and increased responsibility. This juxtaposition has been associated with the furtherance of fragmented care and compromised patient safety (Chesluk et al., 2015; Nicotera et al., 2014; Pavlish, Brown-Saltzman, Fine, et al., 2015; Shapiro et al., 2014; Topaz et al., 2016). When circumstances lead to nurse dissatisfaction, the likelihood of increased turnover and nursing shortages are increased (Perry et al., 2018). Hospital environments that encourage reporting of adverse events are best equipped to sustain compliance in the presence of contributory management support (Kirwan et al., 2013; Rasmussen et al., 2014).

### **Patient Safety**

A large element of patient safety entails freedom from preventable errors, which threaten public or individual welfare (Ammouri et al., 2015; Starmer et al., 2014; Wegner & Neri Rubim Pedro, 2012; Woodward et al., 2010). Such errors are thought to be precipitated by system-level issues such as trending attitudinal patterns and widespread unprofessionalism, which births ethical conflicts, horizontal violence, and moral compromise (Edwards, 2017; Panagos & Pearlman, 2017; Pavlish, Brown-Saltzman, So, et al., 2015; Perry et al., 2018; Shapiro et al., 2014; Taylor & Taylor, 2018; Woodward et al., 2010). An oft-overlooked casualty of preventable errors are the healthcare workers whose actions precipitated their occurrence. These individuals are frequently subjected to effects such as decreased confidence in performance ability and increased anxiety (Mira et al., 2015).

### **Gaps in the Science**

Research involving preventable errors largely overlooks the resultant impact on hospital personnel and the implications that this impact has on the provision of future patient care (Mira et al., 2015). Additional research is needed to establish what system-level factors healthcare workers perceive as precipitators to errors, in addition to the effect that such errors and the factors leading up to them have on them, personally, and the nature of the care they provide to others. Additionally, a great deal of the current literature describes the role of communication for the health of hospital organizations and the welfare of patients. However, there is a lack of specificity regarding the content and methods of communication (Ammouri et al., 2015; Brewer et al., 2018; Kirwan et al., 2013; Nicotera et al., 2014; Panagos & Pearlman, 2017; Pavlish, Brown-Saltzman, Fine, et al., 2015; Pavlish, Brown-Saltzman, So, et al., 2015; Rasmussen et al., 2014; Starmer et al., 2014). Literature suggests that system-level elements, such as blame culture, poor communication patterns, manifold interactivity, conflicting expectations, work environment, unprofessionalism, and entrenched hierarchical echelons have an impact on the occurrence of preventable errors and patient safety (Ammouri et al., 2015; Brewer et al., 2018; Kirwan et al., 2013; McHugh & Ma, 2013; Nicotera et al., 2014; Panagos & Pearlman, 2017; Pavlish, Brown-Saltzman, So, et al., 2015; Rasmussen et al., 2014; Shapiro et al., 2014; Starmer et al., 2014). However, research is needed regarding the distinguishable features these factors possess, how and to whom these things are communicated about, and the influence they have on OH and patient safety.

### **Problem Statement**

Knowledge gained regarding system-level factors that impact hospital system health holds the potential to reveal precipitous elements that precede preventable errors. Interventions applied at the point of care have proven largely ineffective and efforts must be redirected using a complex systems perspective (Berdot et al., 2016; Braithwaite et al., 2015; Finn et al., 2018; James, 2013; Kalisch et al., 2009; Kobewka et al., 2017; Makary & Daniel, 2016; Marvanova & Henkel, 2018; Raban & Westbrook, 2014; Starmer et al., 2014; Woodward et al., 2010; Zhang et al., 2017). Despite growing recognition that hospitals represent complex systems, most research and interventions continue to be applied using a linear reductionist approach (Begun et al., 2003; Braithwaite et al., 2015; WHO, 2009). This persistence has been unsuccessful in mitigating patient harm as the stream of adverse events and patient deaths has continued unfettered (Braithwaite et al., 2015).

### **Purpose of Research**

The purpose of this research was to increase understanding regarding magnet and non-magnet organization nurses and nurse leaders' perceptions regarding what system-level events or circumstances impact hospital system-health and patient safety and to describe their perceptions regarding ways to improve communication regarding these factors.

### **Research Definitions**

The following definitions were used for this research.

- *Complex system* is a heterogeneous whole that contains many interacting subsystems. The relationship between these subsystems gives rise to the complex system's unique purpose and function (Capra & Luisi, 2014). Each subsystem is characterized by its own distinct

level of complexity and phenomena. The conglomerate of amalgamated phenomena yields emergent properties, which would have been unrealized if each subsystem had been isolated from the rest (Capra & Luisi, 2014).

- *Organizational health* refers to the health and optimized functioning of an organization that is comprised of humans. Although varying groups of people may characterize this in unique ways, it most often entails elements of efficiency, positive morale, resiliency, cultural competence, adaptability, shared mission and vision, shared governance, interdisciplinary collaboration, and patient safety (Brittain & Carrington, 2019b; Xenidis & Theocharous, 2014).
- *Preventable errors* are preventable actions of omission or commission that occur while providing care to patients (Classen et al., 2017). The etiology and occurrence of these errors can be difficult to ascertain as documentation standards vary from organization to organization. These errors hold the potential to result in significant patient harm or death (Classen et al., 2017).
- *Communication* is the exchange of information between two or more bodies involving a mutually understood system such as signs, symbols, behaviors, or words (Communication, n.d.). For this to occur, an information source sends a message through a communication channel to an information receiver. When this is done effectively, the message is accurately crafted, sent, and received, and interference along the communication channel is minimal enough that certainty of the message's content is not altered (Shannon, 1967).

- *System-level event* is an event or circumstance that occurs at the system-level and holds the potential to degrade the health of the system and potentiate the occurrence of errors. What these events may entail were addressed by the research questions.

### **Research Questions**

The research study answered the following questions:

1. How are system-level events defined by nurses and nursing leaders in magnet-designated and non-magnet-designated hospitals?
2. What are the strengths and weaknesses of the current method of communicating system-level events?
3. What suggestions are provided to improve communication of system-level events?

### **Significance of this Research**

Every year in the US, over 400,000 deaths and millions of injuries occur from preventable errors (Classen et al., 2017; James, 2013; Makary & Daniel, 2016). Literature suggests that medical records do not precisely capture the occurrence of errors. These statistics may, in fact, be significantly higher (Khan et al., 2016; Makary & Daniel, 2016; Weingart et al., 2005; Weissman et al., 2008; Zhu et al., 2011). Most mitigating efforts have been unsuccessfully implemented at the point of care (Finn et al., 2018; James, 2013; Kobewka et al., 2017; Zhang et al., 2017). The time has come to alter the approach taken for research regarding preventable errors in order to accurately isolate factors relevant to the quest of preventing avoidable patient harm.

### **Summary**

Preventable errors are causing significant patient harm every year in the US (Classen et al., 2017; James, 2013; Makary & Daniel, 2016). For the last 50 years, linearly applied research and interventional efforts at the bedside have been ineffective in reducing the rates of preventable errors (Braithwaite et al., 2015). As understanding regarding the complex nature of hospital organizations has grown, the necessity of conducting research and interventions with these insights has become clear (Begun et al., 2003). Research regarding communication and other system-level factors that precipitate preventable errors will inform efforts to safeguard patients and bolster the welfare of healthcare personnel.

## CHAPTER II: THEORETICAL UNDERPINNINGS

Here, the theoretical underpinnings of the research will be discussed. This research was built upon the concept of communication and the constructs of complex systems and organizational health. This chapter will be used to discuss The *Effective Nurse-to-Nurse Communication Framework* (ENNCF) and complexity theory, concluding with an adapted model that was used to guide research.

### Guiding Concepts

Concepts are the intellectual building blocks that can be used to illustrate an element of the human experience or in the construction of theories (Chinn & Kramer, 2015b; Walker & Avant, 2011). These can generally be extrapolated to measurable variables that are empirically useful (Walker & Avant, 2011). Constructs, on the other hand, are broad abstractions that also signify human experiences, however, they lack empiric measurement capabilities (Walker & Avant, 2011).

### Concepts

- *Communication* is the process of sharing information between two or more entities through a set of mutually understood symbols, such as words or pictures, via a communication channel (Meriam-Webster.com, n.d.; Shannon, 1967). This necessitates an information source that sends a message via a communication channel to an information receiver (Shannon & Weaver, 1964). Such messages may be qualitative or quantitative in nature (Coiera, 2015). This process can be either effective or ineffective based on a plethora of circumstances and influences. Communication channels can include electronic or verbal pathways, such as videoconferencing, electronic health

records, electronic mail, telephonic transmission, or face-to-face conversation (Carrington, 2012a; Coiera, 2015; Shannon, 1967). Although the methods of communication are evolving related to the diffusion of technological advances, effective communication is built on trust and consistently involves an accurate receipt and comprehension of messages (Brittain & Carrington, 2019a).

### **Constructs**

- *Complex systems* are heterogeneous wholes that contain many interacting subsystems. The purpose and function of a complex system stem from the nonlinear relationships of the subsystems contained therein (Capra & Luisi, 2014). Each subsystem has its own inherent phenomena along with unique levels of complexity. The amalgamated phenomena from each subsystem yield emergent properties that would have been unrealized had the parts been working in isolation (Capra & Luisi, 2014). Increased understanding regarding the nature of complex systems has forged a path for research in diverse fields regarding nonlinear phenomena (Capra & Luisi, 2014).
- *Organizational health* (OH) refers to the health of an organization and the people within that organization (Brittain & Carrington, 2019a). In order for this to occur, the organizational system must be open to its environment and able to engage with the energy and influence that it is immersed in (Coiera, 2015). This is a perpetual, context-specific process that requires ongoing, as needed mediations (Chinn & Kramer, 2015a; Fridrich, Jenny, & Bauer, 2015a). When communication pathways facilitate feedback regarding mediation outcomes, future processes can be adjusted accordingly (Pedersen & Nielsen, 2013). A literature review along with preliminary research suggests that OH

within hospitals includes elements of patient safety, shared governance, shared mission and vision, interdisciplinary collaboration, efficiency, resilience, morale, and adaptability (Brittain & Carrington, 2019a; Xenidis & Theocharous, 2014). This is an ongoing process that is in continual flux as environments, people, and processes evolve over time (Chinn & Kramer, 2015b; DeJoy, 2005; Fridrich et al., 2015a). Conversely, when a system settles into a loop of predictable stability, stagnated health and entropy are likely (Topolski, 2009). Positive changes are further optimized and sustained when individuals throughout an organization are afforded the autonomy to explore adaptive self-organizing behaviors (Essén & Lindblad, 2013; Fridrich et al., 2015a). Interdisciplinary collaboration and participatory problem-solving serve to build knowledge and bolster organizational health (Lawson et al., 2015). Such multi-level involvement serves to open communication, strengthen relationships, and build trust and organizational commitment (Ernstmann et al., 2017; Pedersen & Nielsen, 2013). Trust is strengthened further when leadership consistently communicate and act upon organizational dedication, resulting in bolstered staff motivation, engagement, and positive contributinal efforts (Pedersen & Nielsen, 2013; Tabak & Hendy, 2016).

### **Communication Frameworks**

Communication is the process in which a message is shared between two or more entities through a mutually understood set of symbols via a communication channel (Carrington, 2012a; Shannon & Weaver, 1964). The *Effective Nurse-to-Nurse Communication Framework* (ENNCF) lays the groundwork for understanding the concept of communication (Carrington, 2012a). Furthermore, the theories used to underpin the ENNCF, namely, symbolic interactionism,

information theory, and Gerbner's communication model provide additional insights (Blumer, 1969; Gerbner, 1956; Mead, 1967; Shannon, 1948; Shannon & Weaver, 1964).

### **Effective Nurse-to-Nurse Communication Framework**

Prior to the creation of the ENNCF, Carrington (2008) worked to understand nurses' perceptions regarding the effectiveness of the electronic health record (EHR) with or without embedded standardized nursing languages as a communication tool. In order to do this, she opted to narrow the focus to the communication of specific health-related events, termed "clinical events." Issues related to the usability of EHRs, in general, were discovered, including difficulty filtering out pertinent information regarding clinical events, inability to stay logged into the system for a length of time, and the necessity for multiple workarounds. Usability issues pertaining to EHRs with embedded standardized languages included a lack of specificity and comprehensibility. Amid these findings, differences and commonalities were found between documenting and receiving nurses (Carrington, 2008). Building upon this work, Carrington discovered the most common clinical events include fever, pain, bleeding, change in output, change in respiratory status, and change in level of consciousness. When left uncommunicated, these events hold the potential to cause significant patient harm or demise (Carrington, 2012b).

Building on this work, Carrington developed a guiding framework through derivation from the parent theories of symbolic interactionism, information theory, and Gerbner's communication model (Blumer, 1969; Carrington, 2012a; Gerbner, 1956; Mead, 1967; Shannon, 1948; Shannon & Weaver, 1964; Walker & Avant, 2011). Derivation is a type of theory construction used when new information regarding an existing idea or phenomenon is needed. This entails looking to a parent theory/theories and deriving concepts for a new or adapted theory

(Walker & Avant, 2011). Symbolic interactionism was first described by Mead in 1967, in which he discussed the propensity of the *mind*, *self*, and *society* to influence the meanings that people ascribe to things. This theory was expanded by Blumer in 1969, in which he further explicated the concepts of *mind*, *self*, and *society*. *Mind* is understood as the meanings that individuals place on things based on the things that are in their world, such as objects, people, and organizations (Blumer, 1969). *Self* refers to the ways that people view things based on the understanding they have of themselves and others. *Society* refers to how individuals interpret meanings based on their interactions with peers, colleagues, and family (Blumer, 1969).

**Information theory.** Describes the key concepts involved in communication, including *sender*, *message*, *device*, *receiver*, *entropy*, *negentropy*, *redundancy*, *probability* and *noise* (Shannon & Weaver, 1964). For communication to occur there must first be a *message* that is transmitted by a *sender* through a *device* to an *information receiver*. *Entropy* occurs when there is a lack of information or uncertainty regarding the content of a message (Shannon & Weaver, 1964). *Negentropy* ensues when there is an abundance of information and the content of the message is evident. *Redundancy* occurs in the presence of message repetition (Shannon & Weaver, 1964). *Noise* is any interruption or interference along the device, or communication channel that increases *entropy* and reduces message comprehension (Shannon & Weaver, 1964). *Probability* is the statistical likelihood that the correct message will be effectively communicated and received (Shannon & Weaver, 1964).

**Gerbner's communication model (1956).** Describes an event as the *stimulus* that spurs the need for communication. This *event* is perceived by a *responder witness* that recognizes the *event* is occurring and negotiates the available communication system in order to send

communication regarding the event (Gerbner, 1956). After this message has been sent, the *information receiver* makes a determination regarding the responsive actions that should be taken. Finally, the resultant outcome from this communication and subsequent response, result in a *stimulus outcome* (Gerbner, 1956).

Carrington adapted the concepts of *stimulus* and *stimulus outcome* from Gerbner's Communication Model into the *clinical event* and *patient safety* concepts of the ENNCF (Carrington, 2012a; Gerbner, 1956). The concepts of *mind*, *self*, and *society*, as described in *symbolic interactionism*, were modified to nurses' perceptions of clinical events (Blumer, 1969; Carrington, 2012a; Mead, 1967). That is, the meanings that nurses ascribe to clinical events and communication regarding clinical events are largely influenced by their unique mind, self, and societal paradigms. Information theory's *sender*, *device*, and *receiver* were adjusted to the respective *responding nurse*, *electronic and verbal communication*, and *receiving nurse* concepts of the ENNCF (Carrington, 2012a; Shannon & Weaver, 1964). Finally, information theory's *entropy*, *negentropy*, *redundancy*, *noise*, and *probability* are summed up in ENNCF's perception of the communication system (Carrington, 2012a; Shannon & Weaver, 1964).

To walk through the ENNCF with greater specificity, a *clinical event* (understood as fever, pain, bleeding, change in output, change in respiratory status, or change in level of consciousness) occurs in a hospitalized patient (Carrington, 2012a). The *responding nurse* recognizes that this *clinical event* is occurring and based on their perception of the event, sends a message through the *electronic or verbal communication channel* to the *receiving nurse*. Based on the content of the message and the *receiving nurse's* perception of it, an action is taken (Carrington, 2012a). Characteristics of the *nurses* and the *communication channel* have a bearing

on the content, transmission, and interpretation of messages sent and received, which in turn influence the stimulus outcome of *patient safety* (Carrington, 2012a). Please see Figure 1 for a visual representation of this conceptual model.

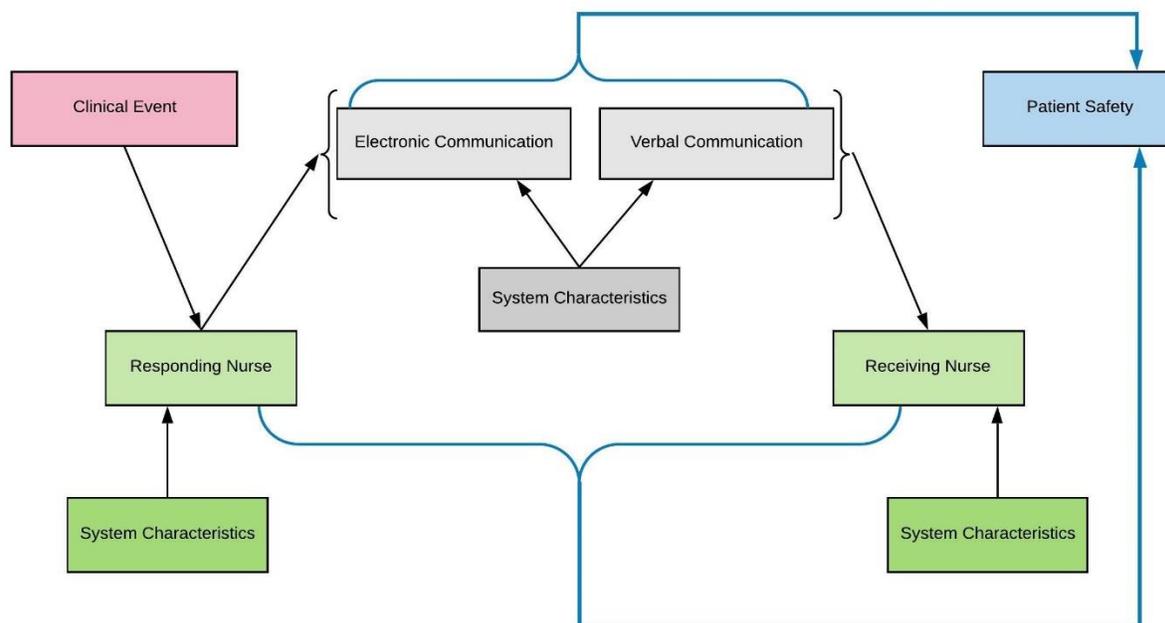


FIGURE 1. Effective nurse-to-nurse communication framework (Carrington, 2012)

The ENNCF has been used in varied contexts within nursing as a germane research guide regarding communication between varied entities, such as neonate-to-neonatal intensive care nurse, nursing home nurse-to-primary care physician, emergency room patient-to-emergency room nurse, emergency room nurse-to-medical/surgical nurse, acute care nurse-to-acute care nurse, and school nurse-to-primary care provider (Dudding, 2018; Huffaker, 2018; Huffman, 2017; Naour, 2018; Nibbelink & Carrington, 2019; Renz, 2017). Based on the flexible applicability regarding matters of communication, I propose an adapted framework, entitled “Effective System-to-System Communication Framework” that was created through derivation

from the ENNCF and complexity theory (Capra & Luisi, 2014; Carrington, 2012a). This will be presented later in the text after review of *complex systems*.

### **Complex Systems**

Systems thinking intensified in the 1920s when biologists discovered that living organisms are not best understood by reductionist study of their parts (Capra & Luisi, 2014). A complex system is a heterogeneous whole, with many interacting subsystems. The interconnective relationships and activity of the subsystems are responsible for the overarching purpose and function of the complex system (Capra & Luisi, 2014). This understanding has given rise to many complex systems science theories, including *systems theory*, *complex adaptive systems*, *chaos theory*, *network theory*, and *complexity theory* (Capra & Luisi, 2014; Dekker, 2011; Karwowski, 2012). My research was guided by concepts commonly attributed to complexity theory, including *non-linearity*, *feedback loops*, *self-organization*, and *emergence* (Capra & Luisi, 2014).

### **Non-Linearity**

The interconnections of subsystems within a complex system are generally convoluted and nonlinear. As such, linearly applied assessments and interventions are fundamentally inappropriate, as these often lead to unforeseen outcomes in subsystems that are *seemingly* unrelated (Capra & Luisi, 2014; WHO, 2009). Until recent history, natural phenomena were regarded as linear and the application of linear equation modeling was deemed an appropriate approach to analysis. The rise of non-linear dynamic mathematics has equipped scientists with the tools to model and conceptualize the complexity of non-linear phenomena (Capra & Luisi, 2014). Although researchers are challenged to clearly map out non-linear phenomena to

determine the impetus and predict patterns, possessing an awareness of these dynamics provides insights into circumstances in the hospital environment that could otherwise be characterized as random happenstance.

### **Feedback Loops**

Feedback loops are a recursive path of connectivity in which one element's output becomes the input for a second element, subsequently altering the output of the second element. This process persists until the first element is once again reached and the process starts anew (Capra & Luisi, 2014; Reiman, Rollenhagen, Pietikäinen, & Heikkilä, 2015). The presence of feedback loops potentiates a dynamic evolution by providing a flow of information that can be used to adjust and modify behavior (WHO, 2009). When complex systems are healthy, this self-regulation is a source of health and continued strength, as knowledge accessibility provides opportunities to learn from mistakes and adjust behaviors accordingly (Capra & Luisi, 2014). Despite the vital importance of feedback loops, they are often poorly understood and challenging to identify (Braithwaite et al., 2015). This can be especially difficult when looking to apply interventions or analyses.

### **Self-Organization**

Complex systems are typified by self-organization, or an unconstrained evolution toward higher order and complexity in the absence of external influence (Ricklefs et al., 2007). This is generally seen in systems that may be deemed chaotic and far from equilibrium. The pull toward complexity is optimized when complex system constituents have shared objectives, frequent interactions, open communication, and autonomy to adjust processes and behaviors as needed (Capra & Luisi, 2014; Pincus & Metten, 2010; Sturmberg, O'Halloran, & Martin, 2013). In

hospital organizations, self-organization is cultivated with efforts to move away from hierarchical structuring while supporting interdisciplinary communication and collaboration (Mahajan, Islam, Schwartz, & Cannesson, 2017). Although this can be a challenging endeavor for leadership drawn to predictable balance and management models, it is vital as homogenous and orderly systems often lack the health and energy needed to thrive (Topolski, 2009).

### **Emergence**

Emergence is a product of self-organizing subsystems within a complex system. As the phenomena from two or more subsystems coalesce, a new phenomenon emerges that would have been unrealized if the subsystems had been functioning remotely (Pincus & Metten, 2010; Zimmerman, Lindberg, & Plsek, 2008). This involves a component of ground-up functioning in the absence of outside influence and prescribed interventions (Pincus & Metten, 2010; Zimmerman et al., 2008). These emergent phenomena are most often unpredictable, unique, and essential to the development and prosperity of complex systems (Capra & Luisi, 2014).

### **Organizational Health**

Organizational health (OH) refers to the health of an organization as well as the individuals within that system. Although this is a relatively new conceptualization, the literature suggests that organizational health involves a multitude of parameters including employee morale and well-being, resilience, adaptiveness, cultural competence, and organizational efficiency (Xenidis & Theocharous, 2014). Preliminary data from a feasibility study suggested that organizational health also involves elements of shared mission and vision, shared governance, interdisciplinary collaboration, and patient safety (Brittain & Carrington, 2019b). Although a pertinent theoretical framework regarding organizational health is currently

unavailable, the knowledge gained from literature and feasibility research was used to inform the integration of this concept into my adapted framework described below.

### **Effective System-to-System Communication Framework**

The *Effective System-to-System Communication Framework* (ESSCF) was created through derivation, looking to the ENNCF, the parent theories of the ENNCF, and complexity theory (Capra & Luisi, 2014; Carrington, 2012a; Walker & Avant, 2011). The ESSCF includes the concepts of *system-level event*, *responding sub-system*, *sub-system characteristics*, *message*, *communication channel*, *communication channel characteristics*, *receiving sub-system*, and *system health*. In the ESSCF, the *system-level event* is the stimulus that spurs the need for communication within a hospital organization. The original iteration of the adapted model used the concept of *organizational event* as the stimulus that initiated the need for communication. After review with members of my committee, it was discussed that unique systems can sometimes be healthy despite being housed in overarching hospital systems that are not. With this in mind, the concept was changed to reflect a “system.” This additionally increases the applicability of the framework to varied contexts. The *responding sub-system* recognizes that the *system-level event* has occurred and, based on its perception of the event, sends a *message* to the *receiving sub-system* via an electronic or verbal *communication channel*. Based on its interpretation of the communicated *message*, the *receiving sub-system* chooses what action to take in response to the *message* regarding the *system-level event*. The *characteristics* of the *responding* and *receiving sub-systems* as well as the *communication channel* influence the stimulus outcome of *system health*. Preliminary feasibility study research suggested that

components of system health include elements of shared mission and vision, shared governance, interdisciplinary collaboration, and patient safety (Brittain & Carrington, 2019b).

The ESSCF represents various elements of non-linearity. Firstly, it is postulated that various *system-level events* are impacting overall *system health* and *patient safety*. This is not a readily made conclusion, as most issues with patient safety are treated at the point of care and not systemically (James, 2013; Kobewka et al., 2017; Panagos & Pearlman, 2017; Wegner & Neri Rubim Pedro, 2012; Zhang et al., 2017). A feedback loop connection exists between *system health* and *system-level event*. That is, the degree of *system health* will impact the hospital environment in a way that may either mitigate or perpetuate the occurrence of further *system-level events*. In a healthy system, this feedback loop would facilitate the occurrence of self-organizing behaviors. Systems with unconstrained flows of communication are able to rectify sabotaging behaviors while nurturing health-promoting ones. This, in turn, perpetuates an evolution toward higher-order and complexity without the aid of external manipulation. As systems within a hospital organization self-organize, the cumulative behaviors amalgamate to create emergent phenomena that would have been unachievable had the respective systems been isolated from one another. For further details regarding the ESSCF concepts and theoretical underpinnings, please see Table 1. For a visualization of the ESSCF, please refer to Figure 2.

TABLE 1. *Theoretical underpinnings.*

Concept	Operational Components	Empirical Indicators	Theoretical Link
<ul style="list-style-type: none"> <li>Stimulus</li> <li>Clinical Event</li> </ul>	<ul style="list-style-type: none"> <li>System-Level Event</li> </ul>	<ul style="list-style-type: none"> <li>A system-level event or change</li> </ul>	<ul style="list-style-type: none"> <li>Gerbner's Communication Model</li> <li>Effective Nurse-to-Nurse Communication Framework</li> </ul>

TABLE 1 – *Continued*

Concept	Operational Components	Empirical Indicators	Theoretical Link
<ul style="list-style-type: none"> <li>• Responder Witness</li> <li>• Responding Nurse</li> </ul>	<ul style="list-style-type: none"> <li>• Responding Sub-System</li> </ul>	<ul style="list-style-type: none"> <li>• Sub-system that recognizes system-level event is occurring</li> </ul>	<ul style="list-style-type: none"> <li>• Gerbner's Communication Model</li> <li>• ENNCF</li> </ul>
<ul style="list-style-type: none"> <li>• Nurse Characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• Sub-System Characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• Sub-system characteristics that influence perception of system-level event</li> </ul>	<ul style="list-style-type: none"> <li>• Symbolic Interactionism</li> </ul>
<ul style="list-style-type: none"> <li>• Message</li> </ul>	<ul style="list-style-type: none"> <li>• Message</li> </ul>	<ul style="list-style-type: none"> <li>• Communication sent from one entity to another</li> </ul>	Information Theory
<ul style="list-style-type: none"> <li>• Device</li> <li>• Communication Channel</li> </ul>	<ul style="list-style-type: none"> <li>• Communication Channel</li> </ul>	<ul style="list-style-type: none"> <li>• Electronic or verbal means by which communication is conveyed</li> </ul>	Information Theory
<ul style="list-style-type: none"> <li>• Communication Channel Characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• Communication Channel Characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• Characteristics of the communication channel that may influence how a message is conveyed</li> </ul>	<ul style="list-style-type: none"> <li>• Effective Nurse-to-Nurse Communication Framework</li> </ul>
<ul style="list-style-type: none"> <li>• Information Receiver</li> <li>• Receiving Nurse</li> </ul>	<ul style="list-style-type: none"> <li>• Receiving Subsystem</li> </ul>	<ul style="list-style-type: none"> <li>• Sub-system that receives message from responding sub-system regarding system-level event</li> </ul>	<ul style="list-style-type: none"> <li>• Effective Nurse-to-Nurse Communication Framework</li> <li>• Gerbner's Communication Model</li> <li>• Information Theory</li> </ul>
<ul style="list-style-type: none"> <li>• Stimulus Outcome</li> <li>• Patient Safety</li> </ul>	<ul style="list-style-type: none"> <li>• System Health</li> </ul>	<ul style="list-style-type: none"> <li>• System health characterized by shared mission and vision, shared governance, interdisciplinary collaboration, and patient safety</li> </ul>	<ul style="list-style-type: none"> <li>• Gerbner's Communication Model</li> <li>• Effective Nurse-to-Nurse Communication Framework</li> </ul>

TABLE 1 – *Continued*

Concept	Operational Components	Empirical Indicators	Theoretical Link
<ul style="list-style-type: none"> <li>Feedback Loop</li> </ul>	<ul style="list-style-type: none"> <li>Feedback Loop</li> </ul>	<ul style="list-style-type: none"> <li>Recursive route of communicative feedback that provides potential for self-organization of system</li> </ul>	<ul style="list-style-type: none"> <li>Complexity Theory</li> </ul>

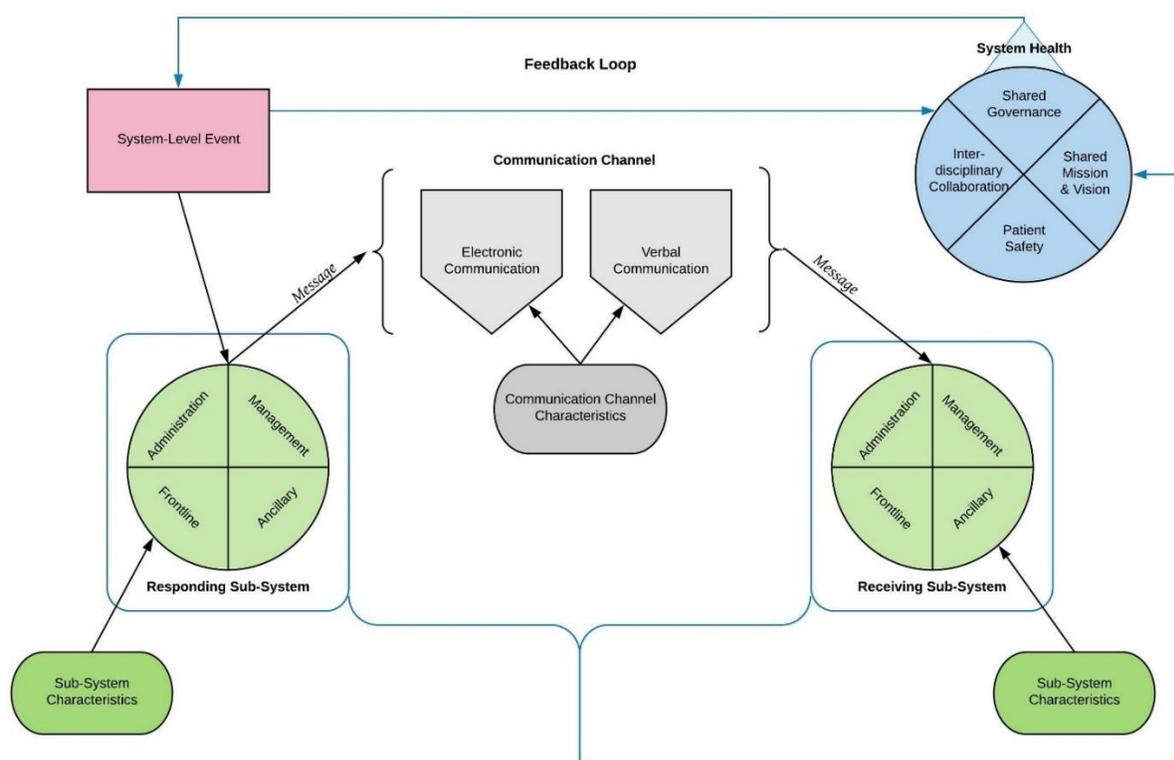


FIGURE 2. Effective system-to-system communication framework. (Note: Adapted from the Effective Nurse-to-Nurse Communication Framework [Carrington, 2012a])

### Nursing Worldview

A worldview is a conceptual tool that can be used to give voice to one's perception of reality. Such perceptions are often built upon diverse, but time-tested assumptions (Mendelson,

1968). The ontology of nursing includes an array of nursing worldviews that serve as a tool to frame research and scholarly inquiry in a way that coheres with the researcher's personal experience (Reed & Shearer, 2018).

### **Simultaneous Action Worldview**

In 1993, Fawcett summarized the characteristics from various worldviews that nurses had ascribed to up until that point. In this way, she created a synthesis framework by amalgamating elements from other worldviews. Of these worldviews, the *simultaneous action worldview* corresponds with my personal beliefs, views of reality, and approach to research. Please see Table 2 for a summarization of the tenets of the *simultaneous action worldview* and the areas of application for my research.

TABLE 2. *Simultaneous action worldview tenets.*

<b>Domain</b>	<b>Tenet</b>	<b>Application</b>
Human Relationship to Environment	Human beings are 'unitary.' Meaning that they are in continual rhythmic process with their environment.	Hospitalized patients are in process with and affected by the hospital environment.
Identity	Human beings are identified by their patterns rather than by their parts.	Like humans, hospital systems' health must be assessed by patterns rather than a reductionist study of isolated parts.
Nature of Humanity	Human beings are self-organizing systems.	Hospital systems and the humans within them will gravitate toward self-organization when possible.
Change	Change is unpredictable where human beings move through stages of organization and disorganization to more complexity.	Change involving humans in the hospital is complex and unpredictable.
Science and Practice	Science and practice attend to processes of personal becoming and pattern recognition in the study and healthcare of human beings.	Both clinicians and researchers must attend to pattern recognition of hospital systems in order to attend to the health of patients.

(Fawcett, 1993)

## Summary

The two foundational, informing elements of the *Effective System-to-System Communication Framework* are the *Effective Nurse-to-Nurse Communication Framework* as well as *complexity theory* (Capra & Luisi, 2014; Carrington, 2012a; Dekker, 2011). The *Effective Nurse-to-Nurse Communication Framework* has provided the basic structure, relationships, and assumptions involving stimulus-initiated communication between a responder and receiver and the resulting influence this has on the stimulus outcome. Complexity theory has provided insights regarding the complex nature of hospital systems, in addition to the non-linearity and unpredictability that this involves. The adapted *Effective System-to-System Communication Framework* provides a model that effectively guided the study regarding communication of system-level events that influence system health.

### **CHAPTER III: METHODS**

The research was done using a qualitative descriptive design. Analysis was done using thematic analysis, natural language processing, and application of the Goodwin statistic. This chapter will review the research design, sample, setting, and trustworthiness criteria. A reiteration of the problem statement, research purpose, and research questions are provided for clarity.

#### **Problem Statement**

Knowledge regarding the precursors of preventable errors was built through the study of system-level factors that degrade system health. Most interventional efforts have been unsuccessfully applied at the point of care without a complex systems perspective (Berdot et al., 2016; Braithwaite et al., 2015; Finn et al., 2018; James, 2013; Kalisch et al., 2009; Kobewka et al., 2017; Makary & Daniel, 2016; Marvanova & Henkel, 2018; Raban & Westbrook, 2014; Starmer et al., 2014; Woodward et al., 2010; Zhang et al., 2017). Despite an increase in knowledge regarding the complex nature of hospitals, most research and interventions continue to be applied with a linear reductionist approach (Begun et al., 2003; Braithwaite et al., 2015; WHO, 2009). This persistence has been ineffectual as the stream of adverse events and patient deaths has continued unfettered (Braithwaite et al., 2015).

#### **Purpose of Research**

The purpose of this research was to increase understanding of the perceptions of nurses and nurse leaders regarding what system-level events or circumstances impact hospital system health and patient safety in magnet-designated and non-magnet-designated hospitals, including ways to improve communication regarding these factors.

### **Research Questions**

The research study addressed the following questions:

1. How are system-level events defined by nurses and nursing leaders in magnet-designated and non-magnet-designated hospitals?
2. What are the strengths and weaknesses of the current method of communicating system-level events?
3. What suggestions are provided to improve communication of system-level events?

### **Qualitative Research**

The chief objective for using qualitative research is to expand one's comprehension regarding a human or social phenomenon from the perspective of one who abides in the midst of it (Creswell & Poth, 2018). Core assumptions of qualitative research include: 1) The researcher will become intimately familiar with the studied phenomenon; 2) the researcher is cognizant of the relevance of multiple perceptions and realities; 3) the researcher is aware of the value-laden nature of the data collection and analysis and the role that their personal biases and values play in that; and 4) the methods are used inductively in order to let findings from the data emerge (Creswell & Poth, 2018).

The use of qualitative research is preferable over quantitative research when the use of interviews with open-ended questions is desired. Qualitative interviews hold the potential to elicit unexpected responses without the application of a priori assumptions (Green & Thorogood, 2013). The participants' words and how they choose to weave them together in conjunction with their non-aural cues, paint a picture regarding their experiences that could not be captured if addressed quantitatively (Green & Thorogood, 2013).

### **Qualitative Descriptive**

Qualitative descriptive (QD) research is not bound by a specific paradigm, but rather represents an adaptable collection of research methods. In this way, the researcher is afforded the flexibility of theoretically grounding their study to best suit the identified research aim (Sandelowski, 2010). The use of a QD approach is particularly useful when little is known regarding the “how,” “what,” or “when” of phenomena under study, or when straight descriptions of participants’ own words are necessary for the development of interventional work (Neergaard, Olesen, Andersen, & Sondergaard, 2009; Sandelowski, 2000; Sullivan-Bolyai, Bova, & Harper, 2005). The goal of QD researchers is to avoid the manipulation of variables in order to permit the phenomenon of interest to present as if it were not under study (Sandelowski, 2000).

Sandelowski (2000) described QD as a type of naturalistic inquiry, or one that is used to gather data inductively through the study of phenomena in their natural state while avoiding overt abstraction. Lincoln (2007) characterized naturalistic inquiry as something done in an attempt to move beyond quantifiable variables in order to focus on participants’ social constructions. Complex systems-based theories can be used to make the case that naturalistic explanations are present for phenomena of complex systems, even when the impetus of such phenomena are imperceptible (Drees, 1995).

The core questions of this research were asking “how” the perceived events or circumstances were defined, “what” the strengths and weaknesses were involving communication of these events, and “what” suggestions existed regarding ways to improve communication regarding these events. As noted by Drees (1995), it is highly probable that

within the context of hospital *complexity*, these phenomena had *naturalistic*, albeit elusive explanations. With an expansion of knowledge regarding these factors, future interventional work may be pursued in order to bolster system health and safeguard patients. Based on the limited knowledge currently available regarding system-level events, their probable naturalistic explanation, and the need for future interventional work based on the hands-on experience of nurses and nurse leaders as described in their own words, the use of a qualitative descriptive research design was both appropriate and desirable.

### **Setting**

This study used social media (namely Facebook, Twitter, & LinkedIn) to recruit 12 US-based participants. Three staff nurses and three nursing leaders were recruited from magnet and non-magnet designated hospitals for a total of 12 participants. Participants included staff nurses who provided bedside care to medical-surgical patients as well as nursing leadership who worked within or who regularly communicated with those who provided care to this demographic.

### **Recruitment**

Ethics approval for the study was obtained from the University of Arizona. The principal investigator (PI) initiated recruitment posts on Facebook, Twitter, and LinkedIn to explain the study's purpose, inclusion criteria, and projected length of interviews. These posts included a video of the PI explaining these factors with an invitation to send the PI a direct message if they were interested in participating. If a potential participant was found to meet all inclusion criteria, a time was scheduled for an interview to take place. Interviews took place while participants were off shift in order to not interfere with the provision of patient care. Interviews took

approximately 30-60 minutes to complete and were done remotely via “Zoom for Health,” which is a HIPAA compliant computer conferencing option. Participants were notified that they could withdraw from the study at any time without penalty.

### **Sample**

The sample size necessary for a QD study generally falls within a range of 3-20 participants (Magilvy & Thomas, 2009). Malterud, Siersma, and Guassora (2016) suggest that 6-10 participants are appropriate when conducting exploratory work involving largely undescribed phenomena. Robinson (2014) notes that using a range of 3-16 participants when describing subjective phenomena enables an intensive analysis with enough data generation to illuminate cross-case generalities. The proposed sample size for this study was a maximum of 10 staff nurses and 10 nursing leaders for a total of 20 participants. Throughout the collection of data, the PI remained cognizant of cumulative information power as a further barometer of the appropriate sample size. Information power was strengthened by the depth and relevance of participant experience with the studied phenomena in addition to the quality of interviews (Malterud et al., 2016). Pre-study information power buttressing was been achieved through the application of a solid theoretical underpinning as described in Chapter II, in addition to a triangulation of data analysis methodology which will be reviewed later in this chapter. *Strong information power* was reached with a total of 12 participants.

A purposive sample was acquired through the identification of potential participants who met the inclusion criteria. Sampling was done of bedside staff nurses and nursing leaders ranging from charge nurses to chief nursing officers, with a goal of recruiting a maximum 10 staff nurses and 10 nursing leaders from magnet-designated and non-magnet-designated hospital

organizations. Participants had to: 1) Be a registered nurse practicing in the US; 2) work as a staff nurse with medical-surgical patients, or as a nursing leader (full-time charge nurse, unit manager, department director, chief nursing officer, etc.) whose work involves or affects medical-surgical units; 3) be at least 18 years old; 4) have worked full-time for at least three months in their respective positions; and 5) have the ability to speak English. Participants were advised they could withdraw at any time without consequence. Sampling continued until *adequate information power* had been acquired, which occurred with 12 participants. Participation in the study was completely voluntary. Participants each received a \$10 electronic coffee gift card at the conclusion of the interview as a token of appreciation.

Table 3 exemplifies prospective sample characteristics based on national statistics from the United States Department of Health and Human Services (USDHHS, 2013).

TABLE 3. *Potential sample characteristics (N=20)*

Race	Gender		Total
	Female	Male	
Hispanic/Latino	1	0	1
Black/African American	2	0	2
American Indian/Alaska Native	0	0	0
Asian	2	0	2
Native Hawaiian/Pacific Islander	0	0	0
Multi-Racial	0	0	0
Other Race	0	0	0
White	14	1	15

Adapted from United States Department of Health and Human Services. (2013). CDC health disparities and inequalities report – 96+United States, 2013. *MMWR 2013*, 62(Suppl 3), 1-187.

### Data Collection

Data was collected through interviews using semi-structured open-ended questions. After the informed consent was reviewed, the PI confirmed that the participant agreed to the interview being digitally audio-recorded. Two digital recorders were used to ensure adequate data

collection in the event one of the recorders failed. No video recording was done. The interviews commenced with demographic questions to learn more about the participants. The questions then progressed to semi-structured open-ended questions in order to increase understanding regarding the participants' perceptions regarding elements that degrade hospital system health and compromise patient safety in addition to how such factors are communicated.

### **Preparation of Interview Questions**

Interview questions were crafted in order to elicit descriptive responses regarding nurses and nurse leaders' perceptions of events or circumstances that hold the potential to impact hospital system health and patient safety and ways they perceive communication regarding these factors can be increased. These semi-structured interview questions provided a level of flexibility to accommodate the use of probes or follow-up questions based on participant dialogue content (Kallio et al., 2016; Polit & Beck, 2010). Please refer to Table 4 for a review of research questions and interview questions.

TABLE 4. *Research and interview question alignment.*

<b>Research Questions</b>	<b>Semi-Structured Interview Questions</b>
Basic Demographics	What is your gender? What is your race and ethnicity? How long have you practiced as a nurse? What is your highest earned degree in nursing? How long have you been in leadership (if applicable)? How long have you worked in this facility? Is this a magnet or non-magnet designated facility?

TABLE 4 – *Continued*

Research Questions	Semi-Structured Interview Questions
How are system events defined?	<p>Can you share your thoughts regarding what a healthy hospital system looks like?</p> <p>What characteristics do you think are unique to healthy hospital systems?</p> <p>How do you think these factors influence patient safety?</p> <p>What characteristics do you think are unique to unhealthy hospital systems?</p> <p>What events do you think contribute to unhealthy hospital systems?</p> <p>How do you think these factors influence patient safety?</p>
What are the strengths and weaknesses of the current method of communicating system events?	<p>If you recognized something that you felt threatened the health of a <u>hospital system</u>, how and to whom would you communicate?</p> <p>If you recognized something that you felt threatened <u>patient safety</u>, how and to whom would you communicate?</p> <p>Can you share your perceptions regarding the strengths of the communication patterns you described?</p> <p>Can you share any weaknesses that you perceive in the current communication methods you described?</p>
What suggestions are provided to improve communication of system events?	<p>What would you suggest to nursing leaders to improve communication regarding factors that threaten hospital system health?</p> <p>What would you suggest to nursing leaders to improve communication regarding factors that threaten patient safety?</p> <p>What would you suggest to staff nurses to improve communication regarding factors that threaten hospital system health?</p> <p>What would you suggest to staff nurses to improve communication regarding factors that threaten patient safety?</p>

### Study Protocol

Data collection began once approval was obtained from the Institutional Review Board (IRB) of The University of Arizona. The PI began the recruitment process by posting an informational invitation video (Appendix A) on Facebook, Twitter, and LinkedIn. These posts were done with a “public view” setting that allowed them to be “liked,” “retweeted,” or “shared.”

Potential participants were encouraged to send the PI a direct message to confirm they met eligibility criteria and to set up an appointment for an interview via Zoom for Health. All potential participants were discouraged from providing any personal data via social media platforms other than matters pertaining to eligibility criteria. Once an individual was recruited and had been noted to meet inclusion criteria, review of an informed consent was done (Appendix B). After any questions were answered, they were asked to give informed consent. The participant was advised that the PI would not share their identity and that the interview content would be de-identified. Upon receiving permission from the participant, the PI commenced audio recording and began the interview. For all interviews, both the participant and PI were in a quiet and private area for the duration of the interview. Confidentiality was assured to all participants during individual interviews. Zoom for Health interviews were done with only the PI and the participant present. At the conclusion of the interview, the audio recording devices and any field notes made by the PI were stowed away in a secure lockbox for transit to the PI's personal office. Once at the office, the PI transferred the contents of the secure lockbox to a locked fireproof filing cabinet.

### **Data Management**

After the PI completed data collection, the audio-recorded interviews were transcribed verbatim via an outside transcription service that is compliant with the requirements of confidential data set forth by the Health Insurance Portability and Accountability Act (HIPAA) (Landmark Associates, n.d.). The deidentified transcribed files are stored on an encrypted and password-protected computer. Once verified for accuracy, the recordings were deleted. Each

interview transcript was given an alpha-numeric code to protect participant confidentiality while providing means of data organization.

### **Data Analysis**

Demographic data were analyzed using descriptive statistics. Transcribed interview data were analyzed using within-methods triangulation by manual thematic analysis, natural language processing using Linguistic Inquiry and Word Count (LIWC<sup>®</sup>) software, and the Goodwin statistic (Goodwin & Goodwin, 1985; LIWC.net, n.d.).

### **Thematic Analysis**

Thematic analysis is a method used in qualitative research to identify themes, or common threads, that emerge in an interview or collection of interviews (Morse & Field, 1995). This was done as an inductive process, in that the themes were allowed to emerge from the data rather than preemptively applied (Fereday & Muir-Cochrane, 2006). This highlighted areas that were specifically emphasized and of significance to the participants.

Line-by-line coding was done to conduct a thematic analysis manually or without the aid of pre-packaged software. This entailed creating a Microsoft Excel spreadsheet (Microsoft Excel for Office 365, Redmond, WA) and placing key phrases from textual data into column A of worksheet 1. Once these key phrases were entered, the researcher took time to ponder and ruminate on the words and intent of each key phrase. The researcher then noted in column B of worksheet 1 the themes that each key phrase denoted. If a phrase signified more than one theme, subsequent columns were used as needed. Once this was done for all key phrases, themes from worksheet 1 were copied and pasted into worksheet 2. At this juncture, more time was taken to contemplate the noted themes while looking for emerging patterns. Once patterns were

identified, these become subcategories. Once subcategories were recognized, key themes were accordingly organized by subcategory. After this process concluded, subcategories were further consolidated into overarching main categories. The use of this manual Excel spreadsheet method also served to naturally provide an organized audit trail that included a clear picture of the researcher's thought processes and decision-making. Once the thematic analysis was completed by the PI, the data and audit trail were provided to Dr. Carrington (Committee Chair) for peer debriefing (Trochim, Donnelly, & Arora, 2016).

### **Natural Language Processing**

Linguistic Inquiry and Word Count (LIWC<sup>®</sup>) is a psychometrically validated software program that analyzes text using natural language processing (The University of British Columbia, n.d.). Whereas thematic analysis reveals what was said, natural language processing reveals the ways in which words were said. Application of this software allows users to make inferences of participants' psychological and emotional states through analysis of word choice and frequency (Tausczik & Pennebaker, 2010; The University of British Columbia, n.d.). Words that participants use provide important information regarding underlying motivations, emotions, and thought processes (Tausczik & Pennebaker, 2010).

### **Goodwin Statistic**

Once an agreement regarding themes, subcategories, and categories was reached, further analysis was done using the Goodwin statistic (Goodwin & Goodwin, 1985). The Goodwin statistic served to highlight areas of strong participant emphasis. This statistic was calculated by dividing the total of thematic units by the sum of thematic units and the number of nurses whose

speech signified that theme. This provided information regarding an aggregate of redundancy rather than isolated analyses of participants (Goodwin & Goodwin, 1985).

### **Establishing Trustworthiness**

It has been proposed that the matter of rigor in qualitative research hinges on the ability of the researcher to stay true to the data, rather than following a strict adherence to a lengthy list of rules (Sandelowski, 1993). Lincoln and Guba (1985) proposed criteria by which to substantiate the trustworthiness of qualitative research. Trustworthiness is considered to be the qualitative equivalent of rigor, which is a term generally used to characterize the quality of quantitative research findings. Domains of trustworthiness include truth-value, applicability, consistency, and neutrality (Lincoln & Guba, 1985).

### **Credibility**

Truth-value refers to the level of confidence one can reasonably have in the credibility of the research findings (Trochim et al., 2016). This confidence is bolstered through activities such as persistent observation, prolonged engagement, triangulation of data sources, triangulation of data analysis methods, and peer debriefing (Lincoln & Guba, 1985). For this research study, credibility was strengthened through triangulation of data analysis via thematic analysis, natural language processing, and application of the Goodwin statistic (LIWC.net, n.d.). Additionally, peer debriefing was done by Dr. Carrington of the data and audit trail to ensure that there was a clear link between the phenomena as described by participants and the research findings.

### **Transferability**

Unlike quantitative research, qualitative findings cannot be considered generalizable related to the absence of non-random participant sampling and assignment. However, researchers

can provide rich descriptions of their findings in order to facilitate readers' application to other contexts if desired (Lincoln & Guba, 1985). This was aided by the researcher's inclusion of pertinent details such as settings, basic de-identified participant descriptions, research protocol, and any existing researcher-participant relationships (Morrow, 2005).

### **Dependability**

Consistency, or dependability, in qualitative research refers to the ability of another researcher being able to replicate the study in the same fashion that it was originally conducted (Lincoln & Guba, 1985). In quantitative research, this goal would be termed reliability, which would include the expectation that subsequent researchers would have the ability to replicate the study and obtain similar results (Trochim et al., 2016). However, in qualitative research, stringent replication of results is not the pursued goal. The onus is on future researchers to assess the details of the study to determine whether there may be points of applicability to their own work. The PI supported such endeavors by the detailed provision of study details and through keeping a meticulous audit trail (Lincoln & Guba, 1985). Furthermore, the within-methods triangulation of data analysis methods used to strengthen credibility in turn supported dependability, as credibility does not exist without an underpinning of dependability (Lincoln & Guba, 1985).

### **Confirmability**

Confirmability refers to the presence of neutrality and objectivity (Lincoln & Guba, 1985). This can be supported and sustained through the practice of reflexivity. Reflexivity is the continued practice of bringing one's preconceived beliefs, values, and opinions to the forefront of the mind in order to "bracket" them and more easily set them aside (Jootun, McGhee, &

Marland, 2009). Like a parenthetical statement within a sentence – the bracketed information is a piece of the overarching whole that does not stifle the heart of the central message. Although a total eradication of this bracketed information would suppress the qualitative process, making an effort to explicitly identify and acknowledge it supports objectivity (Jootun et al., 2009). This process was aided through reflexive journaling (putting preconceived ideas down in written form) in addition to peer debriefing by Dr. Carrington to search for elements of implicit bias that may have persisted.

### **Summary**

Using a qualitative descriptive research method allowed the research questions to be answered and the purpose of the study to be accomplished. This approach provided the opportunity to conduct qualitative interviews in order to open up responses without a priori assumptions regarding what the findings may entail (Green & Thorogood, 2013). In addition, the *way* that participants spoke about their experiences involving system-health painted a picture that would not be accessible through quantitative means (Tausczik & Pennebaker, 2010). The application of within-methods triangulation through thematic analysis and natural language processing was used to reveal what was said in addition to how it was said (LIWC.net, n.d.). Finally, use of the Goodwin statistic served to highlight areas of aggregate emphasis (Goodwin & Goodwin, 1985).

## **CHAPTER IV: RESULTS**

Thus far, the design, methodology, and theoretical underpinnings of this research have been discussed. This chapter will be used to present results from the study. The sample's demographic information will be provided, including information regarding time in leadership as applicable. Additionally, the emergent themes, subcategories, and categories will be reviewed including the revealed contextual meanings. Finally, a detailed explanation will be provided regarding the unearthed answers to the three original research questions.

### **Demographics**

This study had an intended sample size of five staff nurses each from a magnet and non-magnet designated hospital organization and five nursing leaders each from a magnet and non-magnet designated hospital organization for a total of 20 participants or until adequate information power was met. Information power refers to the amount of information held within a sample stemming from the use of an established theoretical underpinning, sample specificity, dialogue quality, and analysis strategy (Malterud et al., 2016). Pre-study information power was buttressed through the application of the theoretical underpinning described in Chapter II, as well as the use of a triangulated data analysis methodology discussed in Chapter III. Additionally, the sample and resulting dialogue were of both quality and specificity. An additional consideration of thematic saturation was also considered. Thematic saturation is reached when a researcher comes to a point of discovering that no new information is revealed upon further data collection (Miles, Huberman, & Saldana, 2014). The final sample size was three staff nurses each from a magnet and non-magnet designated hospital organization and three nursing leaders each from a magnet and non-magnet designated hospital organization for a total of 12 participants. The

disparity between the planned and actual number of participants seemed to stem from the difficulty of recruiting nurses during the COVID-19 pandemic. However, through the conduction of simultaneous data collection and analysis, it was determined that adequate information power and thematic saturation were reached (Malterud et al., 2016; Miles et al., 2014; Streubert & Carpenter, 2011). The sample consisted of 83.3% female (n = 10) and 16.7% male (n = 2). The sample included 16.7% participants who identified as African American (n = 2), 8.3% as Hispanic (n = 1), and 75% as Caucasian (n = 9). The education level of the sample spanned from associate's degree (ADN) to doctor of nursing practice (DNP), with half (n = 6) having a baccalaureate degree (BSN). The range of years practiced as a nurse ranged from less than one year to over 15 years, with half of the nurses (50%, n = 6) having practiced over 15 years. Of the sampled leaders (n = 6), the range of years working in leadership ranged from one year to over 15 years, with half of leaders (n = 3) having been in leadership less than five years. Please refer to Tables 5 and 6 for a detailed delineation of nurse demographic and characteristic information.

TABLE 5. *Nurse demographics and characteristics (N=12).*

<b>Parameter</b>	<b>n</b>	<b>%</b>
<b>Gender</b>		
Female	10	83.33
Male	2	16.67
<b>Race or Ethnicity</b>		
African American	2	16.67
Hispanic	1	8.33
Caucasian	9	75
<b>Education Level</b>		
ADN	2	16.67
BSN	6	50
MSN	3	25
DNP	1	8.33
<b>Time in Practice</b>		
<1 year – 5 years	3	25
>5 years – 10 years	1	8.33
>10 years – 15 years	2	16.67
>15 years	6	50

TABLE 6. *Nurse leader time in practice (N=6).*

<b>Time in Leadership</b>	<b>n</b>	<b>%</b>
<1 year – 5 years	3	50
>5 years – 10 years	1	16.67
>10 years – 15 years	1	16.67
>15 years	1	16.67

### **Categories, Subcategories and Thematic Units**

Participant interviews were audio-recorded with permission and subsequently transcribed verbatim through a HIPAA compliant transcription service (Landmark Associates, n.d.). The accuracy of the transcripts was verified by the principal investigator (PI). Inductive thematic analysis was done per the methods described in Chapter III. Microsoft Excel was used to conduct this coding, by organizing interview data into thematic units, subcategories, and categories. The PI conducted the first round of coding before seeking agreement with Dr. Carrington. After six iterative sessions, 100% agreement on coding was achieved and 546 thematic units emerged.

### **Categories**

The 546 thematic units that emerged from the data were organized by category and subcategory. To highlight areas of particular emphasis, the Goodwin statistic was calculated for categories and subcategories (Goodwin & Goodwin, 1985). This was done by dividing the total of thematic units by the sum of thematic units and the number of participants who contributed to that theme (Goodwin & Goodwin, 1985). This statistic illuminates aggregate redundancy as opposed to singular participant analyses. Quantifying the strength or weight of each category in this way shows the collective focus given to each one (Goodwin & Goodwin, 1985). This calculation will be included in the following tables as  $t/(n+1)$ , wherein “t” represents total thematic units and “n” signifies the number of participants who contributed to those units.

A total of 22 categories emerged from the themes: *healthy systems, broken systems, culture, ethics, communication, responsibility, shared governance, hierarchy, approach, processes, decision-making, change, leadership, workforce, workload, valued staff, devalued staff, safety events, peer pressure, staff wellness, patient care, and threats to patient safety.*

Themes from each category were used to inform their definitions. These are presented below with their definitions (Table 7).

TABLE 7. *Emerg ed categories with definitions and subcategories with definitions.*

Category	Subcategory	Definition
Healthy Systems		Hospital systems with employees who take pride in their work and have the resources they need to provide safe, quality patient care
Broken Systems		Unhealthy hospital systems filled with infighting, disconnected leadership, discontented staff, and patients receiving suboptimal care
	Organization	A hospital system
	Leaders	Individuals or entities that have been placed in authority over others
	Staff	Employees, namely nurses, working in a hospital setting
	Patients	Persons receiving medical care
Culture		Patterns of social beliefs and behaviors underpinned by a collective value system
Ethics		Qualities and standards for conduct that motivate behaviors
Communication		Conveyance of information from one entity to another
	System	The overarching hospital organization and the elements therein
	Leadership	Individuals or entities place in authority over others
	Physicians	Individuals licensed to practice medicine
	Team	A collection of individuals responsible for providing patient care
	Ineffective	An inadequate or absent conveyance of information from one entity to another

TABLE 7 – *Continued*

<b>Category</b>	<b>Subcategory</b>	<b>Definition</b>
Responsibility		Being held to account for the behavior of self or others
Shared Governance		Decentralizing control in order to hear and value all voices equitably
Hierarchy		Structuring model that ranks echelons of people groups by designated levels of importance and power
Approach		Method used to manage and problem-solve issues within the hospital system
	Team	Collaborative methodology amongst members of the same group for working through the undertaking at hand
	Multi/Interdisciplinary	The collaboration of people or ideas from multiple disciplines
	Siloed	Decisions or actions that are made without regard for the impact those measures will have on other people or systems
Processes		Structural patterns of behavior
	Uniform	Consistent practices or procedures
	Discordant	Inconsistent or haphazard practices or procedures
Decision-Making		Process used to come to a determination when faced with a choice of action
Change		Alterations in patterns or behaviors with ramifications felt throughout the hospital system
	Uniformed	Unapprised alterations in patterns or behaviors with ramifications felt.
	Stagnation	The absence of growth and innovation
Leadership		Single or collective groups of individuals within the hospital system that hold authority over others
	Supportive	Leadership that is helpful and empowering
	Visible	Leadership that is seen by staff on a routine basis
	Approachable	Leadership who staff feel safe and comfortable coming to

TABLE 7 – *Continued*

<b>Category</b>	<b>Subcategory</b>	<b>Definition</b>
	Accessible	Leadership that staff have the opportunity and ability to seek out as needed
	Teachable	Leadership that is open to and seeks out growth and learning opportunities
	Ineffective	Leadership behavior that does not support or benefit the hospital system
Workforce		The collective personnel working within healthcare systems
Workload		Intensity and quantity of expected behaviors and tasks by hospital staff
	Staffing	The allotment of nurses and support staff for a given number of patients
	Impact on Patients	The ramifications of staffing as experienced by those receiving medical care in hospital systems
Valued Staff		Empowering behaviors that tend to the needs of staff so they can do their job well
	Giving a Voice	Amplifying the influence of staff words and needs
	Inclusion	Embracing and valuing the needs and opinions of staff
	Education	Provision of instruction or training that increases knowledge
Devalued Staff		Disempowering behaviors that diminish staff worth and performance
Safety Events		Errors that hold the potential to cause patient harm
	Response of Discipline	The application of punitive measures in relationship to actions that hold the potential to cause patient harm
	Response of Learning	Seeking knowledge and growth following actions that hold the potential to cause patient harm
Peer Pressure		The behavioral influence of others' perceived opinions or anticipated response

TABLE 7 – *Continued*

Category	Subcategory	Definition
Staff Wellness	Emotional	Holistic health involving elements of joy, contentment and mental peace
	Physical	Preservation and sustenance of physiological health and safety
Patient Care		Tending of hospitalized patient needs
	Person-Focused	The tending of hospitalized patient needs through emphasis on the individual
	Task-Focused	The tending of hospitalized patients through emphasis of tasks
Threats to Patient Safety		Behaviors, practices, or patterns that hold the potential to cause harm
	Staffing	The allotment of nurses and support staff for a given number of patients
	Education and Experience	Ongoing learning or familiarity with an area of content that facilitates the provision of patient care
	Reporting through the Chain of Command	Sharing information systematically through hierarchical levels of leadership
	Electronic Reporting	Conveyance of information through electronic modalities regarding acts, behaviors, or patterns that hold the potential to harm patients

*Healthy systems* accounted for nine (1.6%) of the total thematic units. This equated to a Goodwin statistic of 0.53, which illuminated this as the least emphasized category across participant interviews. Healthy systems are defined as hospital systems with employees who take pride in their work and have the resources they need to provide safe, quality patient care. *Broken systems* accounted for 35 (6.4%) of the total thematic units with a Goodwin statistic of 0.74. Broken systems are defined as unhealthy hospital systems filled with infighting, disconnected leadership, discontented staff, and patients receiving suboptimal care. *Culture* represented 11

thematic units (2.0%) with a Goodwin statistic of 0.69 and is defined as patterns of social beliefs and behaviors underpinned by a collective value system.

*Ethics* had 16 thematic elements (2.9%) with a Goodwin statistic of 0.76 and is defined as the qualities and standards for conduct that motivate behaviors. *Communication* had 71 (13%) thematic units. A Goodwin statistic of 0.86 revealed this as the most highly emphasized category across interviews. Communication is defined as the conveyance of information from one entity to another. Responsibility accounted for eight (1.5%) thematic units with a Goodwin statistic of 0.67 and is defined as being held to account for the behavior of self or others. *Shared governance* represented 27 (4.9%) thematic units with a Goodwin statistic of 0.71 and is defined as decentralizing control in order to hear and value all voices equitably. *Hierarchy* represented 16 (2.9%) of the total thematic units with a Goodwin statistic of 0.64 and is defined as a structuring model that ranks echelons of people groups by designated levels of importance and power. *Approach* had 28 (5.1%) of the total thematic units with a Goodwin statistic of 0.74 and is defined as the method used to manage and problem-solve issues within the hospital system. *Processes* represented 18 (2.9%) of the total thematic units with a Goodwin statistic of 0.69 and is defined as structural patterns of behavior. *Decision-making* accounted for 6 (1.1%) of the total thematic units with a Goodwin statistic of 0.60, which illuminates this was the second least emphasized category across interviews. Decision-making is defined as the process used to come to a determination when faced with a choice of action.

*Change* accounted for 29 (5.3%) of the total thematic units with a Goodwin statistic of 0.78 and is defined as alterations in patterns or behaviors with ramifications felt throughout the hospital system. *Leadership* accounted for 39 (7.1%) of the total thematic units with a Goodwin

statistic of 0.78 and is defined as single or collective groups of individuals within the hospital system that hold authority over others. *Workforce* represented 20 (3.7%) of the thematic units with a Goodwin statistic of 0.74 and is defined as the collective personnel working within healthcare systems. *Workload* represented 36 (6.6%) of the thematic units with a Goodwin statistic of 0.82, making this the second most emphasized category. Workload is defined as the intensity and quantity of expected behaviors and tasks by hospital staff. *Valued staff* accounted for 25 (4.6%) of the total thematic units with a Goodwin statistic of 0.71 and is defined as empowering behaviors that tend to the needs of staff so they can do their job well. *Devalued staff* accounted for 13 (2.4%) of the total thematic units with a Goodwin statistic of 0.65 and is defined as disempowering behaviors that diminish staff worth and performance.

*Safety events* represented 29 (5.3%) of the total thematic units with a Goodwin statistic of 0.81 ranking just under workload for level of emphasis. Safety events is defined as errors that hold the potential to cause patient harm. *Peer pressure* accounted for 15 (2.7%) of the total thematic units with a Goodwin statistic of 0.63 and is defined as the behavioral influence of others' perceived opinions or anticipated response. *Staff wellness* accounted for 22 (4.0%) of the total thematic units with a Goodwin statistic of 0.73 and is defined as the emotional and physical health of staff. *Patient care* represented 28 (5.1%) of the total thematic units with a Goodwin statistic of 0.76 and is defined as the tending of hospitalized patient needs. *Threats to patient safety* accounted for 45 (8.2%) of the total thematic units with a Goodwin statistic of 0.80, revealing a nearly paired level of emphasis with safety events. Threats to patient safety is defined as behaviors, practices, or patterns that hold the potential to cause patient harm. See Table 8 for a representation of emerged categories and subsequent levels of emphasis as illustrated by the

Goodwin statistic (Goodwin & Goodwin, 1985). Following, each category will be presented with inclusion of subcategories and thematic exemplars (Table 8).

TABLE 8. *Emerged categories with Goodwin statistic.*

Category	Total Thematic Units	t/(n + t)
Healthy Systems	t = 9	0.53
Broken Systems	t = 35	0.74
Culture	t = 11	0.69
Ethics	t = 16	0.76
Communication	t = 71	0.86
Responsibility	t = 8	0.67
Shared Governance	t = 27	0.71
Hierarchy	t = 16	0.64
Approach	t = 28	0.74
Processes	t = 18	0.69
Decision-Making	t = 6	0.60
Change	t = 29	0.78
Leadership	t = 39	0.78
Workforce	t = 20	0.74
Workload	t = 36	0.82
Valued Staff	t = 25	0.71
Devalued Staff	t = 13	0.65
Safety Events	t = 29	0.81
Peer Pressure	t = 15	0.63
Staff Wellness	t = 22	0.73
Patient Care	t = 28	0.76
Threats to Patient Safety	t = 45	0.80

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

### Healthy Systems

Healthy systems is defined as “hospital systems with employees who take pride in their work and have the resources they need to provide safe, quality patient care” and accounted for nine thematic units (1.6%) from eight participants. The Goodwin statistic of emphasis was the lowest of all categories at 0.53 (Table 8). A total of five non-magnet participants and three magnet participants contributed to this category. Two thematic units from a non-magnet leader and one thematic unit from a non-magnet nurse explained that healthy hospital systems prioritize patient care over financial gain. This insight was shared from their experience to the contrary.

Two non-magnet leaders spoke of taking care of employees to boost healthy systems. One of these leaders noted a way to do this is by providing adequate supplies. One magnet nurse described low turnover rates as an indicator of healthy hospital systems. Another magnet nurse explained that every individual within a system impacts the overall health of that system. The one magnet leader who contributed to this category noted that healthy competition within a system can help optimize performance (Table 9).

TABLE 9. *Healthy systems category with exemplars.*

Category	t/(n + t)	Thematic Unit Exemplars
<b>Healthy Systems</b> (n=8), (t=9)	0.53	<p><i>So, I think that care of a healthy environment for the nurses to help them with better staffing, have more committees, have – make them feel more like this is my facility – for me, you know?</i> (ABD2)</p> <p><i>we would adequately have enough, um, supplies to do what we need to do, that we would have time to meet with patients and give them the proper education, that we wouldn't feel rushed. And then that would align with the mission statement and values that they tell us that we're supposed to do, but it would all be perfect and fit, and budget would be no object. ABD12</i></p> <p><i>Hmm. I think a healthy hospital system is a system that prioritizes patient care over profits.</i> (ABD3)</p>
Total Thematic Units (t=9)	0.53	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

### **Broken Systems**

Broken systems are defined as “unhealthy hospital systems filled with infighting, disconnected leadership, discontented staff, and patients receiving suboptimal care” and accounted for 35 thematic units (6.4%;  $t/(n+t) = 0.74$ ). This category had four subcategories including: *organization, leaders, staff, and patients* (Table 10).

TABLE 10. *Broken system category with subcategories and exemplars.*

<b>Subcategory</b>	<b>t/(n + t)</b>	<b>Thematic Unit Exemplars</b>
<b>Organization</b> (n=9), (t= 20)	0.69	<i>When, business units or departments don't get along, patients can get stuck in the middle. So, if anesthesiology and radiology don't get along and we have a patient who needs to be scheduled for MRI with sedation – we can have a patient who gets caught in the middle of two feuding departments who might not want to come in at the same time to take care of the patient. (ABD6)</i>
<b>Leaders</b> (n=2), (t=4)	0.67	<i>The managers just bark orders. They don't really even communicate with staff. Their doors are, like, shut, not open (ABD11)</i>
<b>Staff</b> (n=4), (t=7)	0.64	<i>Uh, very top-down management styles where, um, changes are implemented without seeking feedback from the staff who will be implementing them. Not in - including staff in the implementation process. (ABD10)</i>
<b>Patients</b> (n=2), (t=3)	0.60	<i>Just an unsafe environment for the patient and unsafe environment for the nurse. (ABD11)</i>
Total Thematic Units (t=35)	0.74	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

**Organization.** Nine participants contributed to 20 thematic units in the subcategory of organization. Organization is defined as “a hospital system.” Five thematic units described elements of infighting within the hospital system. One magnet leader noted that unhealthy competition between feuding departments can result in wasted resources and hampered patient care. A staff nurse also described elements of unhealthy competition within their hospital system as a result of lost funding. A non-magnet leader noted the propensity of animosity between leaders causing degraded hospital system health. Financial factors were another element discussed. A non-magnet staff nurse noted that healthcare reform has reduced profits, leading to decreased staffing and diminished hospital system health. This same non-magnet nurse noted

that they felt constraints from insurance companies prohibit hospitals from giving full care that patients need to heal. A non-magnet leader shared that a sole focus on money paired with a lack of teamwork degrades hospital system health.

**Leaders.** Two participants contributed to four thematic units in the subcategory of leaders. Leaders are defined as “individuals or entities that have been in placed in a place of authority over others.” One thematic unit from a magnet staff nurse noted that overconfident leaders can be perceived as weak when they ask questions. A non-magnet staff nurse described unhealthy hospital systems as having leaders who are unavailable and bark orders without engaging in communication with staff members. A disconnect was also described between how managers perceive dynamics amongst staff and the reality of what staff experience on the floor.

**Staff.** Four participants contributed to seven thematic units in this subcategory. Staff is defined as “employees, namely nurses, working in a hospital setting.” Three thematic units from magnet staff nurses noted that unhealthy hospital systems do not listen to their staff members. One magnet staff nurse noted that unhealthy hospital systems are evident of many “workarounds” as staff try to discover ways they can accomplish tasks. This same participant noted that if nurses feel empowered, they may be more patient to wait out unhealthy events that occur. A magnet leader described unhealthy hospital systems as toxic and evident of a breakdown in employee relations.

**Patients.** Two participants contributed to three thematic units in this subcategory. Patients are defined as “persons receiving medical care.” A magnet leader noted that unhealthy hospital systems have financial losses as a result of poor patient outcomes, and a non-magnet nurse described unhealthy hospital systems as unsafe environments for patients and nurses.

## Culture

Culture is defined as “patterns of social beliefs and behaviors underpinned by a collective value system” and accounted for 11 thematic units (2.0%) from five participants ( $t/(n+t) = 0.69$ ). One non-magnet staff nurse noted described a shift in culture that has resulted in a lowered standard of nursing care that is difficult for novice and veteran nurses alike to navigate. As a result of this shift, the nurse noted that staff try to cover up mistakes to avoid punishment. This same nurse described that management have the ability to change the culture within their hospital environments. Another non-magnet staff nurse described a shift in culture that has led to an expectation that nurses become jaded and that views ‘caring’ as a weakness. This same nurse described routinely going home after a shift and crying because of not being able to provide the care she wished that she could. A magnet leader noted that a lack of employee buy-in degrades hospital culture and a magnet staff nurse noted that unhealthy hospital systems have uninviting cultures (Table 11).

TABLE 11. *Culture category and exemplars.*

Category	t/(n + t)	Thematic Unit Exemplars
<b>Culture</b> (n=5), (t=11)	0.69	<p><i>I think it's a culture – I think it's a healthcare culture to, to, like get jaded and, it's like you're looked down upon if you are that type of person that, that honestly can go home and cry because you feel like you couldn't help like you wanted to and your hands were tied in certain situations like letting people be discharged who have no business being discharged and you know it and you can't do anything about it. (ABD3)</i></p> <p><i>The culture and the esteem of the hospital really goes down when you don't have buy-in and you don't have that employee engagement that it really needs. (ABD9)</i></p>

TABLE 11 – *Continued*

Category	t/(n + t)	Thematic Unit Exemplars
<b>Culture</b> ( <i>Continued</i> )	0.69	<i>Uh, I see, uh, uh, not an inviting culture, like I've worked on units before where, um, you know, people come across very bothered that you're, you know, calling them. You know it's your job to get orders for a patient and take care of them. So, I think that's probably the biggest thing that I've seen over the years is just the um, you feel upset, you know, I shouldn't have to be pulling teeth and nails just to get a hold of what these patients need. (ABD7)</i>
Total Thematic Units (t=11)	0.69	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

## **Ethics**

Ethics is defined as “the qualities and standards for conduct that motivate behaviors” and accounted for 16 thematic units (2.9%) from three magnet leaders, one magnet staff nurse, and one non-magnet leader ( $t/(n+t) = 0.76$ ). Four thematic units described empathy. One magnet leader discussed the importance of the organization having empathy with respect to patient care. Another magnet leader noted that the *most* important characteristic of a healthy hospital system is empathy for employees. Seven thematic units revolved around matters of integrity. A magnet leader discussed integrity as both a sign of hospital system health as well as an integral component of promoting patient safety. A non-magnet leader noted that healthy organizations should empower staff to do the right thing and that leadership should be modeling themselves the behavior they wish to see in others. A magnet staff member noted that staff want their organizations to have integrity and compassion for both patients and caregivers. Three thematic units involved the matter of respect. A magnet leader noted the importance of respect for a healthy hospital system as well as patient safety and a non-magnet leader described how a lack of

respect for nurses from physicians and had disrupted the flow of patient care. Two thematic units involved accountability. A magnet leader discussed accountability as an indicator of a healthy hospital system and something necessary for the provision of safe patient care (Table 12).

TABLE 12. *Ethics category with exemplars.*

Category	t/(n + t)	Thematic Unit Exemplars
<b>Ethics</b> (n=5), (t=16)	0.76	<p><i>So, uh, I think those are very important when you think about having respect or just having the integrity and the accountability to take, to take care of those patients. You have no other choice but to have those, have the patient safety at heart when you take care of that. (ABD1)</i></p> <p><i>So, I think that's very important, but most important, I think we need an organization that's empathetic to the needs of, uh, their - their workers. So that's some of the characteristics that I look for in an organization. (ABD9)</i></p> <p><i>You want to work for an organization that you really feel, you know, integrity, you know this is a very big, you know, health system, um, so they have a lot of, you know, resources, um, but, I think I guess I would say compassion for patients and the caregivers. (ABD7)</i></p>
Total Thematic Units (t=16)	0.76	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

## **Communication**

Communication is defined as “the conveyance of information from one entity to another” and accounted for 71 thematic units (13%;  $t/(n+t) = 0.86$ ). This category was the most highly emphasized and included the subcategories of *system, leadership, physicians, team,* and *ineffective* and was the most strongly emphasized category (Table 13).

TABLE 13. *Communication category with subcategories and exemplars.*

<b>Subcategory</b>	<b>t/(n + t)</b>	<b>Thematic Unit Exemplars</b>
<b>System</b> (n=8), (t=18)	0.69	<i>I know my one-up would also be receiving that notification, I want to have that conversation to ensure that the loop is closed. (ABD1)</i>
<b>Leadership</b> (n=3), (t=14)	0.82	<i>So, if they would include a charge nurse as people that, you know, that “oh, we’re going to communicate this and they are going to be also communicated and carry out. So, there’d be more consistency. (ABD2)</i>
<b>Physicians</b> (n=7), (t=17)	0.71	<i>Because I try to push through that and call, and call them anyway, but then when they start berating me on the phone it’s very frustrating because I’m like, “Okay, maybe I was wrong, maybe this was something that I didn’t need to contact them about.” And then I start second guessing my, my decision-making skills. (ABD3)</i>
<b>Team</b> (n=3), (t=6)	0.67	<i>So, I think encouraging open communication, even if they’re not getting that open communication from, um, the upper uh, uh, upper leadership. (ABD10)</i>
<b>Ineffective</b> (n=10), (t=16)	0.62	<i>When information isn’t shared across business units that puts the patient at risk. When the system is not set up to support the continuation of patient care – so, the inpatient admission is complete and now we have to transition to home care or the clinic setting and we’re not sharing that information – there’s gaps created and things get missed. (ABD6)</i>
Total Thematic Units (t=71)	0.86	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

**System.** Eight nurses contributed 18 thematic units in this subcategory. System is defined as “the overarching hospital organization and the elements therein.” In this setting, this involves communication as it relates to the system. Three thematic units involved the benefits of consistent communication. A magnet leader reviewed the importance of robust daily safety huddles wherein communication about safety issues is shared inclusively with all who attend. This same leader noted the importance of consistent information that flows with patients as they

navigate varying areas of a healthcare system. Another magnet leader noted the importance of closing the loop of communication and the benefit of issues not getting lost in reporting. Two magnet leaders reviewed the importance of creating system environments that encourage people to share safety concerns so they can be addressed. A non-magnet leader emphasized the importance of having daily huddles to convey information regarding unit and hospital-level changes as they occur. This same leader noted that effective communication improves continuity of care and patient safety.

**Leadership.** Three nurses contributed to 14 themes in this subcategory. Leadership is defined as “individuals or entities that have been in placed in a place of authority over others,” and in this setting, this involves communication coming to and from those in leadership positions. Six thematic units concerned the importance of clear and consistent communication from leadership to staff. A magnet staff nurse noted that transparent communication from leadership regarding safety events is necessary to inform mitigating efforts that ensue. This same leader noted that leaders who lack transparency are detrimental to the health of the organization as a whole. A non-magnet leader noted that effective communication regarding patient safety involves leadership listening to what staff has to say. A non-magnet leader suggested that the inclusion of charge nurses in communication from administration facilitates continuity through the system. This same leader described that communication is strengthened when leadership makes information regarding policies and change readily available to staff.

**Physicians.** Five staff nurses and two nursing leaders contributed to 17 thematic units for this subcategory. Physicians are defined as “individuals licensed to practice medicine,” and in this setting, this involves such individuals practicing in an inpatient hospital environment. Eight

thematic units related to fear and apprehension regarding communication that occurs with rude and condescending physicians. Two non-magnet staff nurses noted that condescending physicians discourage effective communication from staff nurses. A non-magnet nurse noted that they had witnessed nurses avoiding communication with such physicians at the expense of patient care. A magnet staff nurse described feeling that physicians often don't listen to nurses when they have safety concerns. Another magnet staff nurse noted that feeling unheard by physicians reduces communication and increases patient risk. Conversely, a non-magnet leader noted that patient safety is bolstered when physicians listen to and trust nurses. Two thematic units noted that having an electronic messaging option increased access to physicians and the likelihood of nurses communicating with them.

**Team.** Three participants contributed six thematic units to this subcategory. Team is defined as “a collection of individuals responsible for providing patient care.” In this context, this involves communication amongst these individuals. Two thematic units noted the helpfulness of electronic messaging as a tool to expedite communication. A magnet staff nurse spoke about the importance of being transparent regarding feelings and the need for staff to speak up even when they feel they are not receiving open communication in return. A non-magnet staff nurse spoke about the importance of transparent and consistent communication regarding patient circumstances to improve patient safety.

**Ineffective.** Ten participants contributed 16 thematic units to this subcategory. Ineffective is defined in relation to communication as “an inadequate or absent conveyance of information from one entity to another.” Five thematic units involved missing or inconsistent conveyance of information. A non-magnet leader noted that a lack of communication from

hospital administration to staff degrades hospital system health. This same leader discussed the negative impact experienced by staff when management is left out of the communication loop stemming from administration. A non-magnet staff nurse described that inconsistent communication compromises patient safety. A magnet leader noted that not sharing information across subsystems within an overarching healthcare system creates gaps in knowledge and missed patient care. Conversely, a magnet staff nurse noted that over-communication can cloud the intent of messaging and lead to decreased attention on the part of the recipients. Two thematic units involved technology. A non-magnet staff nurse noted that unreliable technology hampers communication, while another non-magnet staff nurse described how the inappropriate use of electronic communication puts patient safety at risk. A non-magnet nursing leader noted that some nurses resort to ineffective communication patterns to save time.

### **Responsibility**

Responsibility is defined as “being held to account for the behavior of self or others” and accounted for eight thematic units (1.5%) contributed to by four participants ( $t/(n+t) = 0.67$ ). Six of the thematic units were from staff nurses and two from nursing leaders. Four thematic units revolved around non-magnet nurses feeling that they are frequently held responsible or called to account for the actions of others. One thematic unit from a non-magnet staff nurse discussed being held accountable for the behavior of support staff. They felt that nurses being held accountable in this way is frustrating and breaks down communication, whereas if all staff were held to the same accountability standard communication would improve. This same nurse noted that nurses are held liable for patient decisions that are out of nurses’ control. A non-magnet nurse shared feeling that staff in unhealthy hospital systems are often yelled at for not doing

things they don't have time to do. A non-magnet leader noted that effective communication involves staff holding one another accountable for chosen actions. A magnet leader shared the perception that communication regarding patient safety events is strengthened when leadership are held accountable to acknowledging and reporting in a timely manner (Table 14).

TABLE 14. *Responsibility category with exemplars.*

Category	t/(n + t)	Thematic Unit Exemplars
<b>Responsibility</b> (n=4), (t=8)	0.67	<i>I can't trust the result that I'm given for that particular individual and I can't trust them to take care of my patient, you know, in the way that they're supposed to. And ultimately it falls on me, even if I'm not even physically present and it's somebody else doing it. (ABD3)</i>
		<i>I think, too, holding each other accountable. Some people are very intimidated by that. So they feel like, um, they don't wanna say—tell someone, "Oh, you missed this, or you missed that," because they're just not comfortable in that manner. So I do see that there's a breakdown there. Instead of it being like, yeah, this is for patient safety, but people are afraid because they're like, "I don't want them—to sound like I'm judging them or sound like I'm the manager or I'm the boss." (ABD12)</i>
		<i>You never have time to answer call bells and then get yelled at for not answering call bells. (ABD11)</i>
Total Thematic Units (t=8)	0.67	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

## Shared Governance

*Shared governance* is defined as “decentralizing control in order to hear and value all voices equitably” and accounted for 27 thematic units from 11 participants (4.9%; t/(n+t) = 0.71). Fourteen thematic units discussed the equality and value of all voices and the importance of hearing and integrating feedback from frontline nurses. A magnet leader and magnet staff

nurse both stressed the importance that decision-making should include everyone and that all voices are equal and should be heard. A non-magnet leader and non-magnet staff member both noted that communication is improved when all voices are heard, including those of patients and families. A non-magnet staff nurse and non-magnet nursing leader noted the importance of encouraging staff nurses to speak up regarding patient safety concerns (Table 15).

TABLE 15. *Shared governance category and exemplars.*

Category	t/(n + t)	Thematic Unit Exemplars
<b>Shared Governance</b> (n=11), (t=27)	0.71	<p><i>Uh, and and and making sure that all voices are heard equally as a consideration of decisions that are being made. So, uh, be it the doctors, the nurses, interdisciplinary teams, uh, all the way – anybody should be able or feel comfortable to be able to speak up and feel like their voice is actually heard. (ABD1)</i></p> <p><i>I think an open-door policy. Listening to the caregivers that are on, you know, that the ones who are actually interacting with the patients day-in and day-out. And, list – actually listening. Trying to be proactive to find solutions that are suitable for the caregivers and of, of course for the patients as well. (ABD3)</i></p> <p><i>I look at a healthy, uh, hospital system as engaging all aspects of their employees. So I look at where your physician part of people— your physician staff — they're partnering with the nurses, and nurses are collaborating with physical therapy, where it's you're - you're dealin' with everyone as a unit, as opposed to bein' so siloed and siloed, disconnected. So I think one, even from the top on down where you have the cohesiveness, where there's their awareness that every part of the organization belongs together. (ABD9)</i></p>
Total Thematic Units (t=27)	0.71	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

## Hierarchy

*Hierarchy* is defined as a “structuring model that ranks echelons of people groups by designated levels of importance and power.” This category had 16 thematic units informed by nine participants (2.9%;  $t/(n+t) = 0.64$ ). Three thematic units involved hierarchical structuring related to physicians over nurses. A non-magnet leader noted that physicians had refused to go in to see COVID-19 positive patients yet expected that nurses would do so. A non-magnet staff nurse noted they felt nurses were commonly blamed for physician mistakes. A magnet staff nurse described the perspective that models that place physicians in authority over nurses is detrimental to the health of the overall health system. Five thematic units involved staff nurses not feeling like they were undervalued and unprioritized. A non-magnet staff nurse noted that they felt administrators are considered a priority and staff nurses are not. This same participant noted that nurses feel they are not treated well. A non-magnet leader noted that staff nurses feel unseen and unheard by their administrators. A non-magnet staff nurse described night shift nurses feeling neglected and uncared for. A non-magnet leader noted that top-down decision making without consideration of individualized needs of units is detrimental to hospital system health (Table 16).

TABLE 16. *Hierarchy category with exemplars.*

Category	$t/(n + t)$	Thematic Unit Exemplars
<b>Hierarchy</b> (n=9), (t=16)	0.64	<i>Especially, being inexperienced, in reality – you know? And, at times I’m seeing, um, we’re, again we’re getting blamed for not catching things that physicians and providers are ordering that may be inappropriate – and I’m like, I’ve only had, been on the floor 9 months, how am I – these people spend many, many years in school and with experience and they expect me to be catching things that they should be doing. (ABD3)</i>

TABLE 16 – *Continued*

Category	t/(n + t)	Thematic Unit Exemplars
<b>Hierarchy – Continued</b>		<p><i>we need the role models and everybody to be the same. Because they feel like – “oh, you know, well, administration is up there, you know, our CNO doesn’t come and see us, you know, the ACNO doesn’t come and see us or even ask about what’s going on. (ABD2)</i></p> <p><i>The number one thing nursing leaders can do is be there at night. ’Cause the night shift is neglected. They don’t feel like anybody cares about them. And then, like, when they’re giving out meals for a—for an event or something, night shift gets one. Day shift gets breakfast, lunch, and dinner. Like, so night shift feels very neglected in a lot of things. (ABD11)</i></p>
Total Thematic Units (t=16)	0.64	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

## Approach

*Approach* is defined as “the method used to manage and problem-solve issues within the hospital system” and accounted for 28 thematic units from 10 participants (5.1%; t/(n+t) = 0.74).

This category included the subcategories of *team*, *multi/interdisciplinary*, and *siloes* (Table 17).

TABLE 17. *Approach category with subcategories and exemplars.*

Subcategory	t/(n + t)	Thematic Unit Exemplars
<b>Team</b> (n=7), (t=14)	0.67	<i>If we had committees for them (staff) to be part of the and a way for them to be representative to see themselves as being able to speak to upper management and to come up with the solutions together. I think it's easier to be able to get resolutions from the people that are actually there dealing with the situations (ABD1)</i>
<b>Multi/Interdisciplinary</b> (n=8), (t=11)	0.58	<i>And, um, has an—has an opportunity for people to bring forth, uh, um, all the types of care, um, providers, and levels of services to bring forth ideas and suggestions for a, um, for change. Having an expectation for, also, all of those areas, um, or all of those levels of care providers, whoever they might be, to be part of the change management process And, um, the advocates for improving care at all points in time. (ABD10)</i>

TABLE 17 – Continued

Subcategory	t/(n + t)	Thematic Unit Exemplars
<b>Siloed</b> (n=3), (t=3)	0.50	<i>Where some business units don't collaborate with the system, they make their own policies, procedures. They make decisions about equipment and supplies and move forward without getting the buy-in of the rest of the system. Really siloed organizations. Um, organizations that don't talk to each other, don't share information or misrepresent information. They don't really have a system group-think mentality. (ABD6)</i>
Total Thematic Units (t=28)	0.74	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

**Team.** Seven nurses contributed to 14 thematic units for the subcategory of team. *Team* is defined as a “collaborative methodology amongst members of the same group for working through the undertaking at hand.” Seven thematic units described staff collaborating within or across units. A magnet nursing leader described the importance of having staff work together to come up with solutions. One non-magnet leader noted that teamwork is needed across units to improve communication, while another non-magnet leader noted that teamwork comes more easily when your coworkers feel like family and that this in turn improves patient safety. A magnet staff nurse felt that having an open dialogue with peers helps to align expectations regarding what safe care entails. One thematic unit from a magnet staff nurse involved the importance of leaders working collaboratively with one another. Two thematic units involved the hospital system. One magnet staff nurse felt that healthy hospital systems use teamwork in their approach to patient care. A non-magnet leader described healthy hospital systems as collaborative.

**Multi/interdisciplinary.** Eight nurses contributed 11 thematic units to this subcategory. *Multi/interdisciplinary* is defined as “the collaboration of people or ideas from multiple

disciplines.” Two thematic units from a non-magnet staff nurse noted the importance of interdisciplinary education and knowledge sharing as a way to foster effective partnerships. Four thematic units described the positive impact of multi or interdisciplinary efforts on the system. One non-magnet leader mentioned the importance of including ancillary staff in these efforts. One magnet staff nurse described multidisciplinary teamwork as beneficial for patient care and another magnet nurse noted that nurses frequently help physicians provide safe care.

**Siloed.** Three nurses contributed three thematic units to this subcategory. *Siloed* is defined as “decisions or actions that are made without regard for the impact those measures will have on other people or systems.” A non-magnet leader noted that a siloed approach degrades the health of the overall hospital system. A magnet staff nurse spoke of the importance of leaders not sending out messaging in a silo. Finally, a magnet leader noted that unhealthy hospital systems have siloed subsystems that make isolated decisions and are not forthright with information regarding those decisions.

### Processes

*Processes* are defined as “structural patterns of behavior” and accounted for 18 thematic units from eight participants (2.9%;  $t/(n+t) = 0.69$ ). This category included the subcategories of *uniform*, and *discordant* (Table 18).

TABLE 18. *Processes* category with subcategories and exemplars.

Subcategory	$t/(n + t)$	Thematic Unit Exemplars
<b>Uniform</b> (n=6), (t=12)	0.67	<i>Employees in one part of the system should be able to do the same job in another part of the system. And the same rules, policies, procedures, and all of those things should apply to them there. (ABD6)</i>

TABLE 18 – *Continued*

<b>Subcategory</b>	<b>t/(n + t)</b>	<b>Thematic Unit Exemplars</b>
<b>Discordant</b> (n=3), (t=6)	0.67	<i>Um, I think one of the other characteristics of that unhealthy environment is where staff actually, um, where there's a number of workarounds, and where there aren't consistent processes in how care is delivered, because staff don't feel empowered to suggest changes.</i> (ABD10)
Total Thematic Units (t=18)	0.69	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

**Uniform.** Twelve nurses contributed to eight thematic units for this subcategory.

*Uniform* is defined as “consistent practices or procedures.” Three thematic units revolved around consistent processes in relation to communication regarding patient safety. A magnet leader talked about safety rounds that occurred daily and a non-magnet leader spoke of daily meetings with the safety health board. One non-magnet staff nurse talked about standard processes in place to address safety concerns. Three thematic units involved the consistent application of practices and continuity of care. One magnet leader spoke of the importance of continuity of care for patients regardless of what hospital subsystem they may find themselves in. This same leader talked about the importance of consistent rules, policies, and procedures throughout a hospital system. Another magnet leader noted the importance of leaders across a system following the same policies and standards in order to protect patient safety. A magnet staff nurse talked about the importance of good organization and identifiable resources. This same nurse described that it is easier to navigate change when working in systems that have organized processes in place. One non-magnet leader discussed structured processes that are in place for responding to violence that sometimes occurs toward nurses.

**Discordant.** Three nurses contributed six thematic units for this subcategory. *Discordant* is defined as “inconsistent or haphazard practices or procedures.” Three thematic units from a non-magnet staff nurse noted that the absence of policies, or not following the policies that exist, threatens patient safety. This same nurse felt that the removal of education from their particular organization following the loss of magnet designation had shifted the culture to a point that both staff and leadership were not following policies. Two thematic units from a magnet nurse and magnet leader described that the lack of uniform policies contributes to unhealthy hospital systems.

### **Decision-Making**

*Decision-making* is defined as “the process used to come to a determination when faced with a choice of action” and accounted for six thematic units (1.1%) from four participants ( $t/(n+t) = 0.60$ ). Two thematic units from a non-magnet nurse discussed the importance of involving bedside input in decision-making that impacts the care that nurses provide. This participant noted that not gaining input from the bedside hinders workflow, increases strain on staff, and compromises patient care. A magnet leader noted that healthy hospital systems share information transparently in order to inform decision-making. Two thematic units concerned the importance of hearing from leadership through the process of decision-making. A magnet staff nurse noted that staff want to hear from leadership through times of decision-making rather than being kept in the dark. A non-magnet staff nurse felt that communication is bolstered when leadership are transparent regarding decision-making. Finally, a magnet staff nurse discussed that different people process information in different ways when making decisions (Table 19).

TABLE 19. *Decision-making category with exemplars.*

Category	t/(n + t)	Thematic Unit Exemplars
<b>Decision-Making</b> (n=4), (t=6)	0.60	<p>“... everybody that I’m surrounded with, nobody likes being in the dark until the last second. So, I think that just communicating through things as you’re making decisions, even if it’s just on the docket and you’re just starting to talk about it, I think that it’s wise to just keep people in, you know, the know.” (ABD4)</p> <p>“A sense of transparency. You have to, um, share data transparently. You need to know where everyone is. When certain entities hide information or misrepresent information, the best decisions can’t be made.” (ABD6)</p> <p>“I know just my experience is that decisions get made without bedside input and that is forced down and without really looking at the workflow and stuff these decisions may be, um, hindering our jobs as nurses.” (ABD5)</p>
Total Thematic Units (t=6)	0.60	

Note: (t = Total Thematic Units; n = Total Nurses Citing)

## Change

*Change* is defined as “alterations in patterns or behaviors with ramifications felt throughout the hospital system” and accounted for 29 thematic units (5.3%) from eight participants ( $t/(n+t) = 0.78$ ). This included the subcategories of *uninformed* and *stagnation* (Table 20).

TABLE 20. *Change category with subcategories and exemplars.*

Subcategory	t/(n + t)	Thematic Unit Exemplars
<b>Change</b> (n=4), (t=13)	0.76	<p><i>But, um, yeah – this is an extraordinary event (i.e. COVID) and I think that we’re going to probably see, in my personal opinion, I’ve only been a nurse 9 months, but I’ve been in healthcare for much longer than that. I think we’re going to see some changes down the line, that, um, hopefully will be positive – I think, you know.</i> (ABD3)</p>

TABLE 20 – *Continued*

<b>Subcategory</b>	<b>t/(n + t)</b>	<b>Thematic Unit Exemplars</b>
<b>Uninformed</b> (n=3), (t=8)	0.73	<i>Uh, very top-down management styles where, um, changes are implemented without seeking feedback from the staff who will be implementing them. Not in - including staff in the implementation process. (ABD10)</i>
<b>Stagnation</b> (n=4), (t=8)	0.67	<i>Uh, um, I'm a newer manager, so, um, the older managers that are there have developed a comment that "it's good that you want to try to make changes, but, you are stretching yourself because upper management will do what they want." So, um, one of them told me – this is what he said – "when you took this position you should have known that we're not at the point where upper management will take a lot of suggestions." (ABD2)</i>
Total Thematic Units (t=29)	0.78	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

**Change.** Four nurses contributed 13 thematic units to this category. All but one of the thematic units were contributed from magnet leaders. One magnet leader reviewed that problems can sometimes begin as one incident that subsequently becomes a major issue. This participant noted that certain processes must be followed to communicate issues as they arise. This participant along with another magnet leader noted that and that staff must be assured that work is being done, but visible change may take time to see. Another magnet leader discussed the importance of conducting root cause analyses in response to safety events in order to inform future changes throughout the hospital system. One non-magnet staff nurse discussed that extraordinary challenges hold the possibility of bringing about positive change.

**Uninformed.** Three nurses contributed eight thematic units for this subcategory. *Uninformed* is defined as “unapprised alterations in patterns or behaviors with ramifications felt throughout the hospital system.” Four thematic units involved an absence of communication or

feedback from staff nurses. A magnet and non-magnet staff nurse noted that rushed changes without input from bedside nurses is detrimental to the health of the entire hospital system. A non-magnet leader noted when changes in processes occur without communication with staff, frustration ensues. A magnet staff nurse discussed that frustrated staff who do not communicate their concerns may seek premature course direction and that positive changes cannot be made unless knowledge of contributing factors has been realized.

**Stagnation.** Four nurses contributed eight thematic units to this subcategory. *Stagnation* is defined as “the absence of growth and innovation.” Two thematic units from a non-magnet leader concerned senior leadership. It was noted that senior leadership had grown accustomed to the way things are and have come to accept that they are powerless to effect change. A non-magnet staff nurse talked about feeling powerless to bring about change going on to describe that concerns that have been communicated by staff nurses have not improved working conditions or staffing issues. This same nurse noted that this predicament seemed unchangeable barring legislative mandates. One magnet staff nurse described the threat posed to hospital system health when policies go unchanged in light of new circumstances. Another magnet staff nurse talked about the prevalence of nurses in unhealthy hospital systems using workarounds instead of suggesting an alternative, since they believe that nothing will ever change.

### **Leadership**

*Leadership* is defined as “single or collective groups of individuals within the hospital system that hold authority over others” and accounted for 39 thematic units (7.1%) contributed to by 11 participants ( $t/(n+t) = 0.78$ ). This category included the subcategories of *supportive*, *visible*, *approachable*, *accessible*, *teachable*, and *ineffective* (Table 21).

TABLE 21. *Leadership category with subcategories and exemplars.*

<b>Subcategory</b>	<b>t/(n + t)</b>	<b>Thematic Unit Exemplars</b>
<b>Supportive</b> (n=6), (t=7)	0.54	<i>Um, management that, if they see—if it—the staff overwhelmed, that will step in and help. (ABD11)</i>
<b>Visible</b> (n=4), (t=8)	0.67	<i>If this person (leadership sic) is someone who is often out on the unit, asking questi - uh, they're more likely to go to that person with a concern. ons, or, um, seeking feedback, then I think that So, I think it just kind of creates a loop of communication, as opposed to just being a one-way conversation. (ABD10)</i>
<b>Approachable</b> (n=4), (t=6)	0.60	<i>And I feel comfortable doing that. I feel like everybody's very approachable, so we're very lucky with that. You know, you could go to your manager. You can go to the next step. You can go to administration, the director of nursing, and speak with them. You know, and it may not get results, but you can make your needs known. (ABD12)</i>
<b>Accessible</b> (n=4), (t=9)	0.69	<i>I just, I'm big on, you know, being able to, you know, communicate or you know, I don't know. I like knowing that at any time, even if it's not my direct, uh, unit manager, if the VP of Nursing happens to see you walking down the hall, I can be like, "Hey, (name), I have a question." or, "Hey, I have an idea." And she stops, and it's never a, "Uh, I'm, I'm in a hurry. I've got meetings." "Take that up with your, you know, manager, your unit manager." You know, it doesn't matter who, I mean, even the CEO. If he's walking through the hall, "Hey." You know. One of the the upsides of working at a smaller hospital, when it really feels like family. (ABD8)</i>
<b>Teachable</b> (n=3), (t=6)	0.67	<i>I think it's the responsibility of every nursing leaders to communicate that - to—and - and get—uh, tell them what occurred and get their feedback, find out their ways of doing things, see if they enter - encountered the same issues and what they're doin' to, uh, either help it or prevent it or what solutions they've come up with. (ABD9)</i>
<b>Ineffective</b> (n=3), (t=3)	0.50	<i>And I felt like, they (leaders) were so busy putting out little, like fires that they don't really get the big picture sometimes. (ABD5)</i>
Total Thematic Units (t=39)	0.78	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

**Supportive.** Six participants contributed to seven thematic units for this subcategory. In this setting, *supportive* is defined as “leadership that is helpful and empowering.” Five thematic units involved how staff are encouraged and assisted by their leaders. A non-magnet nursing leader noted that staff know they are available to them and will speak to upper management on their behalf. A magnet leader noted that leadership can come alongside staff to help empower the reporting of safety events. A magnet staff nurse noted that staff should be able to bring concerns to leadership for discussion and validation. A non-magnet staff nurse described that in healthy hospital systems; management are willing to help staff as needed. The other two thematic units involved leadership behavior. A magnet leader noted that it is the responsibility of leadership to be aware of what is transpiring in their own areas. A non-magnet leader noted that effective communication from leadership should be consistently assertive and kind.

**Visible.** Four participants contributed eight thematic units for this subcategory. *Visible* is defined as “leadership that is seen by staff on a routine basis.” Five thematic units tied leadership visibility to improved communication. A magnet and non-magnet staff nurse in addition to a non-magnet leader noted that leaders who are engaged and visible foster approachability and improved communication. A non-magnet leader and magnet staff nurse noted that healthy hospital systems have visible leadership. A non-magnet leader noted that leadership should regularly check in with staff and a non-magnet staff nurse talked about how night shift nurses would appreciate a consistent leadership presence on the floor.

**Approachable.** Four nurses contributed six thematic units to this subcategory. *Approachable* is defined as “leaders who staff feel safe and comfortable coming to.” A magnet nurse noted that leaders who are open to feedback elevate their level of approachability. A non-

magnet leader talked about approachable leadership facilitating staff feeling comfortable to make their needs known. Two magnet nurses discussed that approachable leaders help bolster communication.

**Accessible.** Four nurses contributed nine thematic units to this subcategory. *Accessible* is defined as “leadership that staff have the opportunity and ability to seek out as needed.” Two non-magnet staff and one non-magnet leader noted that accessible leadership improved communication. A magnet staff nurse and non-magnet leader talked about their positive experience with accessible leadership. A non-magnet staff nurse described telephonic communication as helpful in bolstering the accessibility of their leaders. This same nurse described a need for staff to have leadership that is both accessible and helpful. They went on to describe the lack of accessible leadership to those working night shifts.

**Teachable.** Three magnet participants contributed six thematic units to this subcategory. *Teachable* is defined as “leadership that is open to and seeks out growth and learning opportunities.” Three thematic units from a magnet leader revealed the need for leaders to be coached regarding how to handle responses to safety events. Another magnet leader discussed that leadership should proactively seek feedback from other leaders regarding their experiences with system issues and solutions that have worked for them. A magnet staff nurse discussed the benefit of leadership seeking back and forth communication in order to aid decision-making.

**Ineffective.** Three participants contributed three thematic units to this subcategory. *Ineffective* is defined as “leadership behavior that does not support or benefit the hospital system.” A non-magnet staff nurse described the propensity of leadership to get distracted by small problems while missing the big picture. A non-magnet leader discussed disparities between

what administration does and what they do. Finally, a magnet staff nurse said that nurses feel like they are in the dark when they don't hear from nursing administration through times of change and uncertainty, as has been the case through the COVID-19 pandemic.

### **Workforce**

*Workforce* is defined as “the collective personnel working within healthcare systems” and accounted for 20 thematic units (3.7%;  $t/(n+t) = 0.74$ ). This category had nine thematic units involving turnover. A magnet staff nurse talked about how an applied emphasis on work/life balance with staff who have low morale leads to turnover. This same nurse went on to say that leadership turnover is something that can be detrimental to the health of hospital systems. A non-magnet nurse said that factors such as difficult work, feeling powerless, and low pay leads to turnover. Another non-magnet nurse felt that the lack of pensions was a factor involved in reduced commitment and subsequent turnover. This same nurse shared that they felt that younger nurses lack organizational commitment and see nursing as a job and not a career to the detriment of their work performance. Two thematic units involved inexperienced staff. One non-magnet staff nurse noted that the prevalence of inexperienced staff leads to insecurity when urgent needs arise. A magnet nurse shared that within their organization, up to 75% of nursing staff have less than one year of experience. A non-magnet nurse shared that many nurses do not feel like this profession is what they signed up for. A magnet nurse shared that night shift nurses have reduced access to providers. A non-magnet leader noted that nurses lose motivation when physicians neglect their own duties. A magnet leader noted that patient care, research, and evidence-based practice all suffer when staff serve their own purpose rather than that of the organization (Table 22).

TABLE 22. *Workforce category and exemplars.*

Category	t/(n + t)	Thematic Unit Exemplars
<b>Workforce</b> (n=7), (t=20)	0.74	<p><i>So, there's been an increased emphasis on work/life balance and if you have a low staff morale, but you've also encouraged work/life balance, um, you're gonna be more likely to lose those staff. (ABD10)</i></p> <p><i>I don't know about other hospital systems, but we are staffed mostly with new nurses, even up to like the team-lead level. I have a team-lead on night shift who, she's only been a nurse for a few more months than me. So, there's the level of insecurity when you're having an urgent issue to go to someone who totally lacks the experience to handle it. (ABD3)</i></p> <p><i>They're there for their purpose as - as opposed to the purpose of the organization and that's to provide the - the healthy care, the safe care the quality care that the patients need. So, you'll see that. You'll start seeing that not only is the work sloppier, but you don't have that engagement, the—those people that will go the extra step or the extra mile. (ABD9)</i></p>
Total Thematic Units (t=20)	0.74	

Note: (t = Total Thematic Units; n = Total Nurses Citing)

## Workload

*Workload* is defined as “the intensity and quantity of expected behaviors and tasks by hospital staff” and accounted for 36 thematic codes (6.6%) from eight participants (t/(n+t) = 0.82). This category was the second most emphasized category and included the subcategories of *staffing* and *impact on patients* (Table 23).

TABLE 23. *Workload category with subcategories and exemplars.*

Subcategory	t/(n + t)	Thematic Unit Exemplars
<b>Workload</b> (n=7), (t=11)	0.61	<i>I get that people don't want to do this job – it's hard. They're often given more work than they can do in their allotted shift. (ABD3)</i>

TABLE 23 – *Continued*

<b>Subcategory</b>	<b>t/(n + t)</b>	<b>Thematic Unit Exemplars</b>
<b>Staffing</b> (n=5), (t=17)	0.77	<i>Cause, right now, it's just numbers and bodies. There's no acuity attached to individual patients. There's no system in place for that. It's just, well you have six patients, or you have 35 on the floor and this is how many techs you get for that many patients. It doesn't matter if most of those patients are total care and confused - you know what I mean? They, it doesn't, they don't care about that. This is not factored in. (ABD3)</i>
<b>Impact on Patients</b> (n=4), (t=8)	0.67	<i>When - when we don't have set nurse-patient ratios, um, and having us collaborate and work together, um, it makes it difficult because, you know, you're stretched too thin. There can be things put in, um - in line to protect patient safety and things like that, but when you're rushed, things are easily missed, or you can't get to them as quick as you'd like to. (ABD12)</i>
Total Thematic Units (t=36)	0.82	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

**Workload.** Seven nurses contributed to 11 thematic units for this category. Four thematic units involved support staff. A non-magnet staff nurse shared that they felt that it was difficult to attract support staff to fill positions because of the heavy workload involved. This same nurse noted that when support staff are uninvested in their work, this reduces nurses' trust and ultimately increases the workload for the nurse who has to check to make sure things have been done. A magnet staff nurse that increased documentation requirements and busyness had led several support staff to begin dishonest charting to note that tasks were done when in fact they were not. Two different non-magnet staff nurses noted that the COVID-19 pandemic had led to extra work and increased stress through their health systems. A non-magnet leader noted that increased stress decreases staff motivation. Another non-magnet leader described the prevalence of overworked and burned out staff and the degradation this causes a hospital health system. A

non-magnet staff nurse described the frustration of leaders saying they have an open-door policy if staff are too busy to ever make it to their door.

**Staffing.** Five nurses contributed 17 thematic units to this subcategory. *Staffing* is defined as “the allotment of nurses and support staff for a given number of patients.” Four thematic units concerned the matter of patient acuity. Two non-magnet nurses and one non-magnet leader noted that healthy hospital systems consider patient acuity when making staffing assignments, however, all of these participants noted that this was not done in their facilities. Five thematic units revolved around healthy hospital systems having adequate staffing and unhealthy hospital systems having inadequate staffing. A non-magnet leader noted that staffing ratios should consider patient safety over financial savings. This participant also noted that decreased income for the hospital had resulted in staffing decreases. A non-magnet nurse said that increased staffing was necessary in order to provide proper patient education. A magnet staff nurse noted that the COVID-19 pandemic had highlighted the importance of fair staffing assignments as some units and staff are getting tasked disproportionately. This same magnet nurse found the lack of support staff upsetting and mused if they were not compensated enough to stay.

**Impact on patients.** Four non-magnet participants contributed to eight thematic units for this subcategory. *Impact on patients* is defined as “the ramifications of staffing as experienced by those receiving medical care in hospital systems.” Five thematic units involved missed patient care. A non-magnet nurse noted that an intense workload and the accompanying stress, anxiety, and time constraints lead to missed patient care. Another non-magnet nurse noted that staff in unhealthy hospital systems do not have time to answer call bells. This was echoed by a non-magnet leader who noted that even with safeguards, things easily get missed. Another non-

magnet nurse leader noted that stressed and burned out staff who don't feel like their efforts make a difference provide lesser quality patient care.

### Valued Staff

*Valued staff* is defined as “empowering behaviors that tend to the needs of staff so they can do their job well” and accounted for 25 thematic units (4.6%) from 10 different participants ( $t/(n+t) = 0.71$ ). This category included the subcategories of *giving a voice*, *inclusion*, and *education* (Table 24).

TABLE 24. *Valued staff category with subcategories and exemplars.*

Subcategory	$t/(n + t)$	Thematic Unit Exemplars
<b>Valued Staff</b> (n=5), (t=7)	0.58	<i>A healthy hospital system to me, is, where you're providing quality care to everybody, um, but your staff is also happy and feels like they're doing what they can do, they're, you know, compensated fairly, they have adequate supplies and things necessary. And they have good results coming out of it. So, not just one or the other, um, but good care and happy staff. (ABD4)</i>
<b>Giving a Voice</b> (n=3), (t=7)	0.70	<i>Um, I have an open-door policy. They come in, they talk to me. Sometimes, I'll even tell them – if you need to take a 5-minute break. You can scream, cry, yell, whatever. It's open. I'm here for you all. Um, so, I have very good communication with the staff. (ABD2)</i>
<b>Inclusion</b> (n=4), (t=5)	0.56	<i>If we had committees for them (staff) to be part of the and a way for them to be representative to see themselves as being able to speak to upper management and to come up with the solutions together. I think it's easier to be able to get resolutions from the people that are actually there dealing with the situations. (ABD1)</i>

TABLE 24 – *Continued*

Subcategory	t/(n + t)	Thematic Unit Exemplars
<b>Education</b> (n=5), (t=6)	0.55	<i>I think it's as important that the organization have a characteristic of making sure that it provides the—a professional culture for those that want to, uh, have growth and development, so that the necessary training needs to be there, the oport—not just the training, but there needs to be opportunity, 'cause if I have training, but you can never go to the training because you're so busy, then that defeats the purpose. I just have it in name and not actually in reality.</i> (ABD9)
Total Thematic Units (t=25)	0.71	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

**Valued staff.** Five nurses contributed to seven thematic units for this category. Three thematic units from two non-magnet leaders revolved around how caring for the needs of staff bolsters the health of the hospital system boosts patient safety. One of these leaders described that one way to take care of staff is to step in when patient members become threatening to remind them that nurses need their respect. A magnet leader spoke of the importance of compensating staff well for the work that they do. A magnet nurse echoed that sentiment and added that healthy hospital systems take equally good care of their patients and staff.

**Giving a voice.** Three nurses contributed to seven thematic units for this subcategory. *Giving a voice* is defined as “amplifying the influence of staff words and needs.” A magnet leader and two non-magnet leaders noted the vitalness of leadership having open communication and receiving input from staff. The magnet leader went on to note that opportunities must be created in order to put staff in a position to do this. A non-magnet leader talked about their approach of creating a safe place for staff to come to communicate in the way that they needed to.

**Inclusion.** Four nurses contributed to five thematic units for this subcategory. *Inclusion* is defined as “embracing and valuing the needs and opinions of staff.” A magnet leader noted that findings resolutions to issues that arise are easier when staff are included in the discussion. This same leader emphasized that solutions must be sought that are best for everyone. A non-magnet leader talked about the importance of listening to staff as a part of the team. A magnet staff nurse shared the perception that healthy hospital organizations listen to what staff nurses have to say, while another magnet nurse said it is important for staff to hear that they are appreciated.

**Education.** Five nurses contributed to six thematic units for this subcategory. *Education* is defined as the “provision of instruction or training that increases knowledge.” Five thematic units involved the integrality of education in healthy hospital systems. One non-magnet leader described education as a way to empower staff. A magnet leader noted that making education available is not enough and that leadership need to facilitate the opportunities for staff to participate in the training that is offered. A magnet staff nurse shared that one of the best characteristics of a healthy environment involved staff training and learning from one another regarding ways that patient care can be improved. One non-magnet staff nurse said that nurses need both education and nurturing from physicians.

### **Devalued Staff**

*Devalued staff* is defined as “disempowering behaviors that diminish staff worth and performance” and accounted for 13 (2.4%) thematic units from seven participants ( $t/(n+t) = 0.65$ ). Five thematic units concerned staff feeling unseen, unheard, or unappreciated. One non-magnet nurse described feeling this way after their hospital was bought out by a larger organization. Another non-magnet staff nurse described pervasive unresponsiveness to feedback

and concerns from frontline staff, which has led nurses to feel unseen, unheard, and devalued. Another non-magnet nurse shared that they feel management is just not there for them. A magnet nursing leader shared that when employees are disgruntled, turnover ensues, and positions are filled with people there for the money and not aligned with the hospital's mission and vision. A magnet and non-magnet staff nurse noted that unhealthy hospital systems micromanage their employees, thus constraining their autonomy. Another magnet staff nurse noted that staff in unhealthy hospital organizations do not feel empowered to suggest changes and are more apt to use workarounds. A non-magnet leader shared the perception that leaders are not challenging staff to do better (Table 25).

TABLE 25. *Devalued staff category and exemplars.*

Category	t/(n + t)	Thematic Unit Exemplars
<b>Devalued Staff</b> (n=7), (t=13)	0.65	<p><i>And when I get dismissed it makes me feel like I'm not valued and like, like, I want to help improve things and I want to make sure my patients have the best outcome and through my communication of like these safety events and when people don't listen to that I feel like devalued as a person and that made me really dislike my job working there for a time because I couldn't really be an active member based on the communication patterns that I was easily dismissed. (ABD5)</i></p> <p><i>Um, I think one of the other characteristics of that unhealthy environment is where staff actually, um, where there's a number of workarounds, and where there aren't consistent processes in how care is delivered, because staff don't feel empowered to suggest changes. (ABD10)</i></p> <p><i>They – they feel like the manager doesn't do anything 'cause they're never there for them. So. Just needed that more camaraderie with the managers. The managers need to be seen and help them. (ABD11)</i></p>
Total Thematic Units (t=13)	0.65	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

## Safety Events

*Safety events* is defined as “errors that hold the potential to cause patient harm” and accounted for 29 thematic units (5.3%) from seven participants ( $t/(n+t) = 0.65$ ). This category included the subcategories of *response of discipline* and *response of learning* (Table 26).

TABLE 26. *Safety events category with subcategories and exemplars.*

Subcategory	$t/(n + t)$	Thematic Unit Exemplars
<b>Response of Discipline</b> (n=5), (t=7)	0.58	<p><i>Accountability would have to be an issue, would have to be there. There would have to be some sort of discipline for not completing tasks in a timely manner, you know, for the patients that are assigned to you – and, that goes for the nurses and for the techs, of course. (ABD3)</i></p> <p><i>If you're a fall risk that's more than 35 – you're on a bed alarm. If you're not on a bed alarm, you're going to get written up. Like, and we get 3 of them before, like a written warning or, like, fired. But, like, there was some kind of, like, accountability and that promoted a culture of safety because we were accountable. (ABD5)</i></p>
<b>Response of Learning</b> (n=5), (t=22)	0.81	<p><i>I think you have to have characteristics that you - you possess what we call just culture. So, we're making sure that, you know, mistakes are not held against people. You have to have an environment where it's conducive to learning where, uh, you constantly have the opportunity for learning. (ABD9)</i></p> <p><i>Departments and people working in departments have to be willing to disclose actual errors and near miss errors. The more of those things that are reported from the bottom level – things can be fixed. All those near miss events can be recognized and prevented. We can put systems in place to prevent those things from happening. (ABD6)</i></p>
Total Thematic Units (t=29)	0.81	

Note: ( $t$  = Total Thematic Units;  $n$  = Total Nurses Citing)

**Response of discipline.** Five participants contributed seven thematic units to this subcategory. *Response of discipline* is defined as “the application of punitive measures in relationship to actions that hold the potential to cause patient harm.” Four thematic units came from two non-magnet staff nurses who felt that staff nurses should be held accountable for their actions through disciplinary measures. A non-magnet leader bemoaned unions as reinforcing bad behavior by preventing people from losing their jobs when they make grave errors. A magnet leader noted that taking away the ability to report safety concerns anonymously greatly reduces the likelihood that issues will be reported at all. Another magnet leader spoke of the value of avoiding blame but qualified that by some some actionable measures are necessary for particular types of incidents.

**Response of learning.** Five participants contributed 22 thematic units to this subcategory. *Response of learning* is defined as “seeking knowledge and growth following actions that hold the potential to cause patient harm.” Six thematic units specifically addressed the benefit of learning from mistakes that occur. A non-magnet leader noted that communication regarding safety issues is vital in order to process necessary changes. Two magnet leaders spoke of the importance of using mistakes as opportunities for learning. One of those leaders spoke in-depth about an electronic reporting system that facilitates detailed analysis and the ability to track events as they occur. A magnet and non-magnet leader and a magnet staff nurse spoke about the ability of leadership to foster environments that facilitate staff feeling comfortable to report safety events. A magnet staff nurse noted that no event is too small to report if staff deem it important, while a non-magnet staff nurse shared the observation that errors may speak to system issues rather than employee issues.

## Peer Pressure

*Peer pressure* is defined as “the behavioral influence of others’ perceived opinions or anticipated response” and accounted for 15 thematic units (2.7%) from nine participants ( $t/(n+t) = 0.63$ ). A magnet leader contributed to three thematic units regarding positive peer pressure that is facilitated by leadership. This leader noted that it is up to leaders to work to create an atmosphere and culture where staff feel comfortable sharing their opinions and concerns. Two non-magnet leaders, two non-magnet nurses, and one magnet nurse said that nurses should feel comfortable speaking up to leadership without fear of punishment, but they did not note the responsibility of leadership facilitating this. A magnet leader noted that leaders sharing information with each other about safety events in a group setting can create positive peer pressure to communicate transparently. This same leader noted that the possibility still exists that some will not share related to fear of embarrassment or persecution. One non-magnet staff nurse described experiences with negative peer pressure noting that inexperienced nurses were often directed by management to participate in unsafe actions. Another non-magnet nurse described the hesitancy of staff to offer suggestions to leadership out of fear of upsetting them and noted this phenomenon is amplified with new nurses. A non-magnet leader described a similar situation in which fear of peer perceptions prevents staff from calling out each other when they witness unsafe care (Table 27).

TABLE 27. *Peer pressure category with exemplars.*

Category	t/(n + t)	Thematic Unit Exemplars
Peer Pressure (n=9), (t=15)	0.63	<p><i>We have to definitely make them (staff) feel comfortable no matter how uncomfortable they may seem they have to share their opinions. I try as much as possible to create that atmosphere with my team. (ABD1)</i></p> <p><i>And it also sometimes makes leaders feel like they can talk about the things happening at their site, because if this person can talk about this heinous event that happened – then I can talk about my things too. And it almost becomes not cool to not have anything to say, if people want to participate and really share what is happening. (ABD6)</i></p> <p><i>..and then I think, too, holding each other accountable. Some people are very intimidated by that. So, they feel like, um, they don't wanna say—tell someone, “Oh, you missed this, or you missed that,” because they're just not comfortable in that manner. So, I do see that there's a breakdown there. Instead of it being like, yeah, this is for patient safety, but people are afraid because they're like, “I don't want them—to sound like I'm judging them or sound like I'm the manager or I'm the boss.” (ABD12)</i></p>
Total Thematic Units (t=15)	0.63	

*Note: (t = Total Thematic Units; n = Total Nurses Citing)*

### Staff Wellness

*Staff wellness* is defined as “the emotional and physical health of staff” and accounted for 22 (4.0%) total thematic units from eight different participants ( $t/(n+t) = 0.73$ ). This category included the subcategories of *emotional* and *physical* (Table 28).

TABLE 28. *Staff wellness category with subcategories and exemplars.*

Subcategory	t/(n + t)	Thematic Unit Exemplars
<b>Emotional</b> (n=7), (t=15)	0.70	<p><i>I'm looking for something different and I'm in a contract, but I'm willing to actually leave early and pay it out because I'm actually so unhappy...I just hope that those people like you who are, are going to have advanced degrees and may, may have, play a part in policy changes – I pray that you think about us nurses who are doing the hard work, that are on the floor and that are, are ready to leave because, you know, there's no work-life balance whatsoever (ABD3)</i></p> <p><i>And I think—because if employees are happy or they're - they're—they enjoy their work; you see them more engaged with the patients. You see them seeing it more as a career or a calling as opposed to a task that they need to be done. (ABD9)</i></p>
<b>Physical</b> (n=5), (t=7)	0.55	<p><i>Um, and the whole COVID stuff too. Like, we use masks, and, like, not having the appropriate, like, PPE, um, not being able to, like, wear your own masks and then, like the, uh, CDC came out saying that you can. Um, so, it's like trying to have them stay up with evidence-based practice is what's been challenging. (ABD5)</i></p> <p><i>Yes, they're following the CDC guidelines, but they say that a surgical mask is all you need on a, um, positive patient that's coughing in your face just is not – you know, having a high risk procedures like, CPAP or aerosolizing treatments or whatever – I just feel like that was a big shame. Because, like, I, you know, maybe I would have gotten it anyways, but it certainly wasn't a surprise that I got it when you're only allowed to have a surgical mask when you're, like, you know, doing an EKG you're like, laying on top of someone (chuckling) practically. (ABD7)</i></p>
Total Thematic Units (t=22)	0.73	

Note: (t = Total Thematic Units; n = Total Nurses Citing)

**Emotional.** Seven nurses contributed to 16 thematic units for this subcategory.

*Emotional* is defined as “holistic health involving elements of joy, contentment, and mental

peace.” Eight thematic units concerned the presence or absence of happiness. A non-magnet nurse noted that inadequate personal time leads to unhappy staff and poor patient outcomes. This same nurse noted that they are willing to break their contract, at a financial loss, in an attempt to regain happiness. Another non-magnet nurse noted that compromised patient care and having concerns dismissed leads to unhappiness. A non-magnet nurse noted that healthy hospital systems have happy staff and a magnet leader noted that when staff are happy, patients are also happy. A magnet leader shared the insight that happy employees see their work as a calling, rather than a task to be completed. Another non-magnet nurse described working with embittered nurses who hate their job and the toll that took on the unit culture and on them personally.

**Physical.** Five nurses contributed six thematic units to this subcategory. *Physical* is defined as “preservation and sustenance of physiological health and safety.” Three thematic units revolved around COVID-19. A non-magnet nurse noted that staff were not provided appropriate personal protective equipment (PPE) for working with COVID positive patients and were forbidden from bringing in their own. A magnet nurse shared their experience with being given only a surgical mask while closely with COVID positive patients during aerosolizing treatments. This nurse subsequently developed a COVID infection themselves. A non-magnet nurse shared the insight that trying to cut costs in the wrong way jeopardizes the safety of staff and patients. This nurse gave an example of cutting security staff drastically, after which subsequent injuries were incurred by nurses who were working with patients who became violent. A non-magnet leader spoke of the importance of a panic button that could be used to summon security detail as needed.

## Patient Care

*Patient care* is defined as “the tending of hospitalized patient needs” and accounted for 28 thematic units (5.1%) from a total of nine participants ( $t/(n+t) = 0.76$ ). This category included the subcategories of *person-focused* and *task-focused* (Table 29).

TABLE 29. *Patient care category with subcategories and exemplars.*

Subcategory	$t/(n + t)$	Thematic Unit Exemplars
<b>Person-Focused</b> (n=9), (t=22)	0.71	<i>I always remind my staff currently always put yourself in that patient's shoes. It's not just a saying. It's a real thing 'cause it could be you. It could be your mother. It could be your siblings. Anybody could be in that same position. And would you want them not to receive the best care there is? (ABD9)</i>  <i>You have to do what's right for the patient. You know, so, that's the priority for our patient care. (ABD2)</i>
<b>Task-Focused</b> (n=3), (t=6)	0.67	<i>Uh, I think that we're (pause) it's a hard toss up because we're so focused on the safety aspect of it, you know, the sentinel events and everything, but I don't think that it's actually providing better care. I think we're more focused on like numbers and how it looks on paper then how we actually did for them. (ABD4)</i>  <i>I think it's just accepted that they check their boxes. You know, you got your tasks done, but then it takes the humanism out of the care we provide. So like you can do all the tasks, but you forget that there's a human being that you're taking care of, so it changes - changes a lot of times into task nursing instead of like a holistic, you know, the whole person. (ABD12)</i>
Total Thematic Units (t=28)	0.76	

Note: ( $t$  = Total Thematic Units;  $n$  = Total Nurses Citing)

**Person-focused.** Nine nurses contributed 22 thematic units for this subcategory. *Person-focused* is defined as “the tending of hospitalized patient needs through emphasis on the individual.” Eight thematic units concerned the matter of patient safety, a nurse and leaders from

both non-magnet and magnet designated hospitals agreed that patient safety must be a priority. A non-magnet leader noted that this is facilitated when management advocates for staff in order to help staff advocate for patients. A non-magnet nurse relayed that concerns regarding patient safety should be communicated expediently. A magnet staff nurse shared the perspective that effective communication is motivated by the provision of quality patient care. A non-magnet nurse discussed the need for patient education as well as not discharging patients before they are ready. A non-magnet leader also emphasized the need for patient education and described this as an indicator of a healthy hospital system. Based on their current circumstances, this non-magnet leader shared that even when nurses are stuck in unchanging environments, they can try to implement evidence-based practice to safeguard their patients.

**Task-focused.** Three nurses contributed to six thematic units in this subcategory. *Task-focused* is defined as “the tending of hospitalized patients through emphasis on tasks.” A magnet staff nurse and magnet leader both voiced concern over nursing being much more task-driven than it used to be. It was noted that the concern lies with how things look on paper instead of the care that the patient receives. On this note, the magnet leader shared that prioritizing tasks over patient care is not the most important part of the job and does not meet the needs of the patient. A non-magnet leader described a shift from a holistic approach to task-orientation and the acceptance of sub-par work. This leader felt this shift is not indicative of good nursing and serves to compromise the health of hospital systems.

### **Threats to Patient Safety**

*Threats to patient safety* is defined as “behaviors, practices, or patterns that hold the potential to cause patient harm” and accounted for 45 (8.2%) of thematic units contributed to and

highly emphasized by 11 participants ( $t/(n+t) = 0.80$ ). This category included the subcategories of *staffing, education and experience, reporting through chain of command, and electronic reporting* (Table 30).

TABLE 30. *Threats to patient safety category with subcategories and exemplars.*

<b>Subcategory</b>	<b>t/(n + t)</b>	<b>Thematic Unit Exemplars</b>
<b>Threats to Patient Safety</b> (n=7), (t=8)	0.53	<i>So, to not have the processes or have the stopgaps to fix issues before they arise and to be proactive about that definitely would, uh, lead to potentially, uh, a dangerous situation. (ABD1)</i>
<b>Staffing</b> (n=4), (t=6)	0.60	<i>Oh, it's a huge issue with patient if you're, if you're experiencing short staffing, especially on a regular basis. Once in a while you expect that to happen, but it shouldn't be something that's happening over and over again. It's very difficult to maintain excellent care for each and every person when you are, um, pulled in different directions and just simply do not have enough help. You cannot focus on the task that you're trying to do and perform safely and give them the care they deserve. (ABD3)</i>
<b>Education and Experience</b> (n=4), (t=8)	0.67	<i>Um, the education component, um, that is missing at our facility right now is causing a lot of harm and a lot of, um, potential risk. Um, because there's no ongoing education and there's no set standard of preceptorship. Um, there's been a few incidents that were, like, sentinel events. (ABD5)</i>
<b>Reporting through Chain of Command</b> (n=9), (t=16)	0.68	<i>So at our level, like I said, it starts off with the, uh, director, and then if the director can't meet the needs, or not answerin' it, or not followin' through and lettin' me know that there was a follow-up on the concern, then, of course, you could escalate it to the, uh—to our CNO. (ABD9)</i>
<b>Electronic Reporting</b> (n=3), (t=7)	0.80	<i>Like I said, we encourage people to log in to submit, but if someone really wants to submit something of professional conduct or they just don't want to be identified, they do have the option of submitting anonymously. (ABD6)</i>
Total Thematic Units (t=45)	0.80	

Note: (t = Total Thematic Units; n = Total Nurses Citing)

**Threats to patient safety.** Seven nurses contributed eight thematic units to this subcategory. Three thematic units revolved around the staff themselves. A non-magnet staff nurse noted that when management does not take care of the needs of staff, patient care is compromised. A non-magnet leader shared that when new nurses are not made to feel like part of the team, risks ensue as they may be hesitant to ask for help. A magnet leader talked about the link between unmet staff needs and lesser quality patient care. A non-magnet staff nurse noted that nurses have the ability to see system issues that hold the potential to threaten patient safety. A non-magnet leader pointed out, however, that there is often disconnect between management and staff's understanding of what quality care actually is. A non-magnet nurse pointed to a lack of holding staff to a nursing standard as leading to safety events, however, a magnet leader pointed out that lack of processes to fix issues before they escalate is a substantial consideration. A non-magnet nurse pointed to the patients themselves, noting that they are sometimes resistant to learning about their own care.

**Staffing.** Four nurses contributed to six thematic units for this subcategory. *Staffing* is defined as “the allotment of nurses and support staff for a given number of patients.” A non-magnet staff nurse noted that patients deserve safe care that is difficult to provide without having enough help. Both a magnet nurse and non-magnet leader echoed this sentiment, noting that a lack of support staff endangers patients. A magnet nurse described unbalanced unit assignments with many acute patients on one unit as opposed to another, which was perceived as a threat to patient safety. A non-magnet leader talked about inconsistent staffing that does not account for patient acuity as being highly unsafe.

**Education and experience.** Four nurses contributed eight thematic units to this category. *Education and experience* is defined as “ongoing learning or familiarity with an area of content that facilitates the provision of patient care.” A non-magnet staff nurse contributed five thematic units, emphasizing the noted changes experienced in their facility after losing magnet-designation. After this occurred, education programs were cut, massive turnover occurred, and an influx of inexperienced nurses was seen. The participant saw this as highly negative and a contributing factor to many patient safety events. Another non-magnet nurse voiced that lack of education for the patients compromises their safety and decision-making abilities. A magnet staff nurse described turnover and lack of experienced nurses as detrimental to the hospital system and patient care.

**Reporting through chain of command.** Nine nurses contributed 19 thematic units to this subcategory. *Reporting through chain of command* is defined as “sharing information systematically through hierarchical levels of leadership.” Magnet and non-magnet staff nurses and well as magnet and non-magnet nursing leaders talked about the importance of conveying information regarding patient safety concerns or events through their respective chains of command. A non-magnet leader added that when staff have a rapport with leadership, the likelihood of conveying such concerns is increased.

**Electronic reporting.** One magnet leader contributed four thematic units to this subcategory. *Electronic reporting* is defined as “conveyance of information through electronic modalities regarding acts, behaviors, or patterns that hold the potential to harm patients. This participant described a specific electronic reporting system that allowed staff to report concerns

or events anonymously or not. This system would notate where and when the event occurred, creating both a record and a means of conducting a root cause analysis.

In summary, 22 categories emerged from the data. These included *healthy systems*, *broken systems*, *culture*, *ethics*, *communication*, *responsibility*, *shared governance*, *hierarchy*, *approach*, *processes*, *decision-making*, *change*, *leadership*, *workforce*, *workload*, *valued staff*, *devalued staff*, *safety events*, *peer pressure*, *staff wellness*, *patient care*, and *threats to patient safety*. See Table 7 for a review of definitions. *Communication* was the most strongly emphasized category with a Goodwin statistic of 0.86. The communication subcategory of *system* had 18 thematic units, 15 of which were informed by magnet and non-magnet leaders. *Healthy systems* was the least emphasized category with a Goodwin statistic of 0.53. Non-magnet nurses and leaders informed six of nine thematic units. Interestingly, during the interview process, many of these were worded as hypothetical scenarios of what participants felt were healthy systems, not what they were themselves experiencing. *Broken systems* was emphasized more strongly with a Goodwin statistic of 0.74. The broken system subcategory of *staff* was informed entirely by magnet nurses and leaders. Interestingly, through the interview process, these participants also seemed to be speaking in the hypothetical as a contrast to their personal experience.

The category of *responsibility* had a Goodwin statistic of 0.67 and save one thematic unit was entirely informed by non-magnet nurses and leaders, which fit with the narrative of feeling responsible or blamed for the behaviors and choices of others. *Shared governance* had a Goodwin statistic of 0.71 and the majority of thematic units were from magnet nurse and leader interviews. Conversely, *hierarchy* had a Goodwin statistic of 0.64 and the majority of thematic

units were from non-magnet nurse and leader interviews. The *leadership* subcategories of *accessible* and *teachable* had comparable Goodwin statistics of 0.69 and 0.67 respectively. However, except for one thematic unit, the *accessible* subcategory was informed entirely by non-magnet participants. This was evidenced in interviews as participants strongly emphasized the importance of leadership access. The *leadership* subcategory of *teachable* was entirely informed by magnet participants, which also fit the recurring magnet narrative of growth and learning.

The *workload* category had the second-highest level of emphasis with a Goodwin statistic of 0.82. This category had 36 thematic units, 28 of which came from non-magnet interviews. This was evidenced in interviews as non-magnet participants spoke often of the strain and heaviness of their current employment experiences. *Devalued staff* had a Goodwin statistic of 0.65 and 13 thematic interviews, nine of which came from non-magnet nurses and leaders. Again, this was evident in interviews as non-magnet participants spoke of feeling unheard, unseen, and unvalued.

*Peer pressure* had a Goodwin statistic of 0.63. The thematic units that contributed to this category were nearly evenly split between non-magnet and magnet participants, however, there was an evident trend of magnet participants speaking of positive influence and non-magnet participants speaking about rising above negative peer influences to do what is right. *Staff wellness* encompassed the subcategories of *emotional* and *physical health* and had a Goodwin statistic of 0.73. From 22 thematic units, 18 were contributed to by non-magnet participants. These participants were largely speaking about the absence of wellness in these areas. *Threats to patient safety* was the fourth most emphasized category with a Goodwin statistic of 0.80. Out of

45 thematic units, 29 were contributed by non-magnet participants. Throughout the interviews, the weight that participants felt from these threats was clear.

### **Linguistic Inquiry and Word Count**

Natural language processing of interview transcripts was done using the psychometrically validated software program, Linguistic Inquiry and Word Count (LIWC<sup>®</sup>; The University of British Columbia, n.d.). Whereas thematic analysis is used to reveal what was said, natural language reveals elements of motivation, thought processes, and emotional state based on the word choices made by the participants (Tausczik & Pennebaker, 2010; The University of British Columbia, n.d.). The use of thematic analysis in concert with natural language processing is a within-methods triangulation technique that successfully adds a depth of understanding regarding participants' words and the underlying meaning those words convey (Galatzan, 2019; Renz, 2017; Renz, Carrington, & Badger, 2018). The LIWC default dictionary contains nearly 6400 word stems, words, and emoticons, which fall into 80 categories denoting underlying processes and emotive states (Tausczik & Pennebaker, 2010).

The LIWC software is used to compare text data to these categorized words from its internal dictionaries (Pennebaker, Boyd, Jordan, & Blackburn, 2015). Output variables are computed based on the percentage of total words, with the exception of the summary dimensions of *analytical thinking*, *clout*, *authenticity*, and *emotional tone*. The summary dimensions are calculated based on standardized composites of prior published research (Pennebaker, Booth, Boyd, & Francis, 2015) For this research, the LIWC dimensions and subcategories used to assess how participants were communicating included: the summary dimensions of *analytical thinking*, *clout*, *authenticity*, and *emotional tone*; *time orientation* (future-focused, present-focused, &

past-focused); *drives* (risk, reward, & power); *affective processes* (positive & negative emotions); *cognitive processing* (differentiation, certainty, tentativeness, discrepancies, causation, & insight); and *informal speech* (fillers & non-fluencies). Before running the transcripts through the LIWC analysis software, they were prepped and cleaned per the instructions in the associated program manual (Pennebaker, Booth, et al., 2015).

A list of LIWC dimensions with subcategories, definitions, and examples is provided below (Table 31). Table 32 presents a comparison of dimension and subcategory means from magnet staff nurses, magnet nurse leaders, non-magnet staff nurses, and non-magnet nurse leaders, in addition to the LIWC program mean. The LIWC program mean score was calculated through the collection and analysis of text samples from Australia, New Zealand, Canada, England, and the United States. These samples were derived from Twitter posts, newspaper articles, books, expressive writing pieces, and blogs totaling greater than 231 million words from over 80,000 individuals (Pennebaker, Boyd, et al., 2015).

TABLE 31. *LIWC dimensions, subcategories, definitions, and examples.*

LIWC Dimension	Definition	Examples
<b>Summary Language Variables</b>		
Analytical Thinking	Captures degree of formal, logical, hierarchical patterns of thought	High numbers suggest hierarchical, formal, logical thinking  Low numbers suggest personal, informal, or narrative thinking
Clout	Refers to relative confidence, social status, or leadership displayed through words	High numbers reflect speaker is confident with high expertise  Low numbers suggest speaker is tentative, anxious, or humble
Authenticity	Reveals level of honesty, vulnerability, and personableness	High numbers reflect speech that is personal and honest  Low numbers suggest speaker is distant and guarded

TABLE 31 – *Continued*

<b>LIWC Dimension</b>	<b>Definition</b>	<b>Examples</b>
Emotional Tone	Reveals positive and negative emotive responses to events and circumstances	High numbers suggest upbeat and positive style  Low numbers suggest sadness, anxiety, or hostility  Mid-range (around 50) numbers suggest lack of emotion or ambivalence
<b>Time Orientation</b>	Time oriented verbs and references that indicate focus on future, present, or past times, events, or activities	
Future Focus		soon, will, may
Present Focus		now, is, today
Past Focus		said, did, ago
<b>Drives</b>	Motivation underlying the communicated message	
Risk		doubt, danger
Reward		benefit, take, prize
Power		bully, superior
<b>Affective Processes</b>	Reveals personal speaker experience and reaction to events	
Positive Emotion		sweet, nice, love
Negative Emotion		ugly, nasty, hurt
Anxiety		fearful, worried
Anger		annoyed, hate, kill
Sadness		sad, crying, grief
<b>Cognitive Processes</b>	How speaker interprets and processes information in order to understand their environment	
Differentiation		else, but, hasn't
Certainty		never, always
Tentativeness		perhaps, maybe
Discrepancies		would, should
Causation		effect, because
Insight		know, think
<b>Informal Speech</b>		
Fillers	Words used as meaningless fillers	I mean, you know, like
Non-Fluencies	Non-words used to as fillers	hm, umm, err

(LIWC, n.d.; Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010)

TABLE 32. *LIWC analysis of nursing staff and leader interviews.*

<b>LIWC Variables</b>	<b>Magnet Staff Mean</b>	<b>Magnet Leader Mean</b>	<b>Non-Magnet Staff Mean</b>	<b>Non-Magnet Leader Mean</b>	<b>LIWC Mean</b>
<b>Summary Language Variables</b>					
Analytic	24.68	29.38	23.60	22.50	56.34
Clout	63.53	71.94	53.00	81.04	57.95
Authenticity	59.24	38.53	45.15	37.96	49.17
Emotional Tone	74.46	86.20	39.19	64.32	54.22
<b>Time Orientation</b>					
Future Focus	1.48	1.92	1.14	1.46	1.42
Present Focus	15.84	16.61	14.94	17.33	9.96
Past Focus	2.40	1.56	3.39	2.37	4.64
<b>Drives</b>					
Risk	8.95	9.76	8.21	10.56	6.93
Reward	0.50	1.28	1.10	0.87	0.47
Power	1.49	1.31	1.28	1.30	1.46
	3.00	2.91	2.79	3.32	2.35
<b>Affective Processes</b>					
Positive Emotion	3.92	5.31	3.97	4.08	5.57
Negative Emotion	3.24	4.42	2.31	3.04	3.67
Anxiety	0.62	0.81	1.56	1.00	1.84
Anger	0.09	0.22	0.45	0.33	0.31
Sadness	0.09	0.05	0.26	0.11	0.54
	0.13	0.19	0.26	0.23	0.41
<b>Cognitive Processes</b>					
Differentiation	15.66	15.43	15.25	14.49	10.61
Certainty	4.28	4.30	4.82	3.82	2.99
Tentativeness	1.73	1.94	1.18	1.49	1.35
Discrepancies	3.96	3.83	3.72	3.83	2.52
Causation	1.96	2.06	2.53	2.49	1.44
Insight	1.81	2.33	2.65	1.85	1.40
	4.03	3.29	2.57	3.36	2.16
<b>Informal Speech</b>					
Fillers	6.84	3.02	5.75	7.16	-
Non-Fluencies	1.95	0.06	2.58	2.56	0.11
	4.34	2.16	2.63	3.48	0.54

(Pennebaker, Boyd, et al., 2015)

Transcripts from all participants were analyzed with LIWC software for the dimensions of *summary language variables, time orientation, drives, affective processes, cognitive processes, and informal speech* (Pennebaker, Boyd, et al., 2015). This was done to reveal not

specifically *what* was said by the participants, but rather *how* their words were said. The mean values for each of these dimensions and their related subcategories are delineated in Table 7 alongside the LIWC mean values for reference (Pennebaker, Boyd, et al., 2015).

### Analytical Thinking

The summary language variable *analytical thinking* looks at the degree to which a speaker's thought processes reflect formal, logical thinking. *Low analytical thinking* results suggest that a speaker is processing thought in a more narrative or informal way (Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010). All participant groups scored low in this area compared to the LIWC mean of 56.34, with the magnet nursing leaders scoring the highest at 29.38 and the non-magnet leaders scoring the lowest at 22.50. These results suggest that all groups' processes of thought were more of a personal and narrative as opposed to hierarchical or formal in nature (LIWC, n.d.; Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010) (Figure 3).

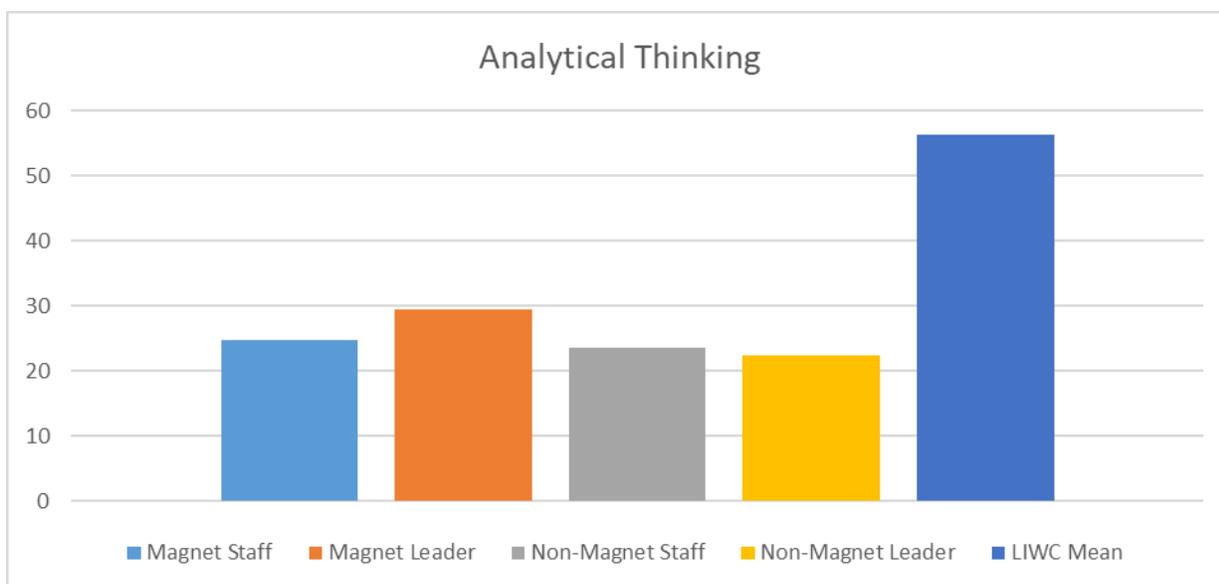


FIGURE 3. LIWC analytical thinking dimension means for all participant groups.

## Clout

The summary language variable *clout* reflects the extent to which a speaker conveys confidence and expertise. Low results in this area would suggest that the speaker is tentative, humble, or even perhaps anxious (Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010). The non-magnet staff nurses scored low in this area at 53 compared to the LIWC mean of 57.95 (Pennebaker, Boyd, et al., 2015). The other participant groups all scored high, with the non-magnet nursing leaders scoring the highest with a collective mean of 81.04. The magnet nursing leaders scored 71.94, suggesting that the non-magnet leaders spoke with greater levels of expertise and confidence regarding the subject matter (LIWC, n.d.; Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010). Please see Figure 4 for a visual representation of this data.

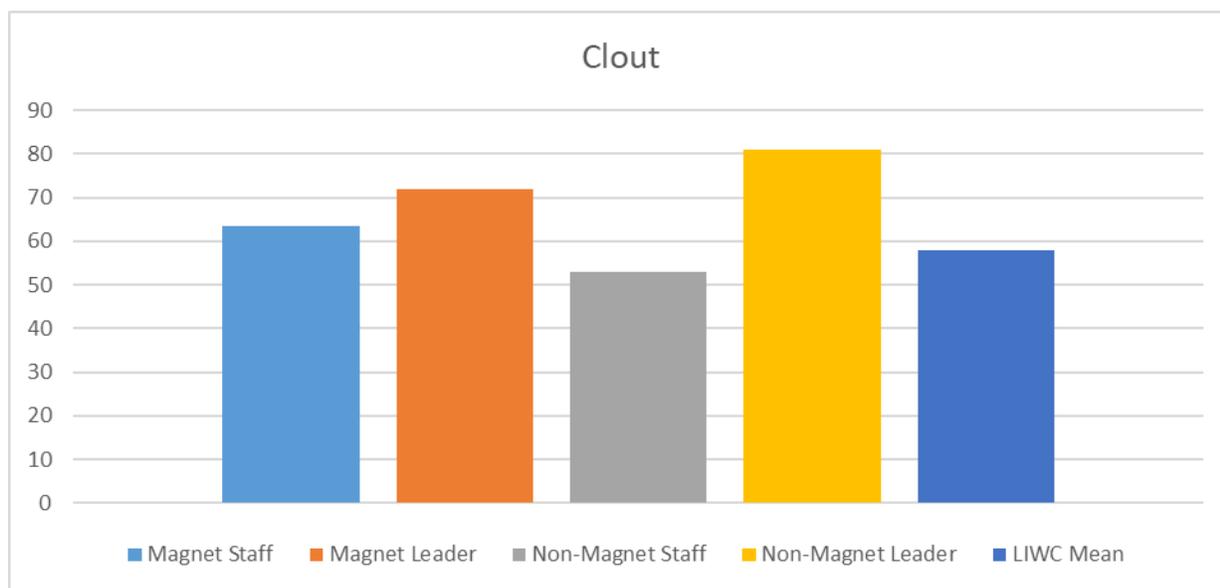


FIGURE 4. LIWC clout dimension means for all participant groups.

## Authenticity

The summary language variable *authenticity* reveals levels of personal vulnerability and honesty. Low numbers in this variable would suggest that a speaker is either distant or rather guarded (Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010). The magnet staff nurses scored high in this area at 59.24 compared to the LIWC mean of 49.17 (Pennebaker, Boyd, et al., 2015). The other participant groups all scored low compared to the LIWC mean, with the non-magnet nurse leaders scoring the lowest at 37.96. This suggests that the magnet staff nurses were sharing information honestly from a place of vulnerability, whereas the non-magnet nurse leaders, although highly confident as noted above, were sharing information in a guarded and non-transparent way (LIWC, n.d.; Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010) (Figure 5).

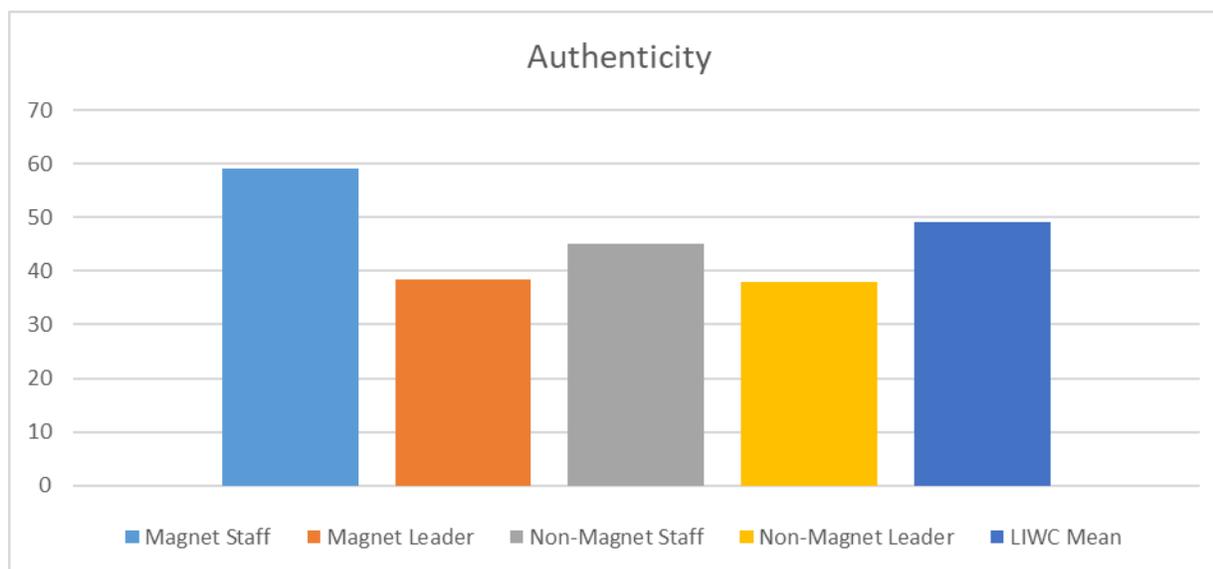


FIGURE 5. LIWC authenticity dimension means for all participant groups.

## Emotional Tone

The summary language variable *emotional tone* reflects whether a speaker is coming from a place of positive or negative emotion. High numbers in this area suggest that the speaker is positive and upbeat, whereas low numbers reflect anxiety, sadness, or even hostility (Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010). The non-magnet staff's collective mean for this variable was low at 39.19 compared to the LIWC mean of 54.22 (Pennebaker, Boyd, et al., 2015). This suggests that the non-magnet staff nurses were coming from a more negative place of sadness and anxiety compared to their peers. All other participant group means exceeded the LIWC mean, with the magnet nursing leaders scoring the highest at 86.20. This suggests that the magnet nursing leaders were collectively more upbeat and positive through their interactions (LIWC, n.d.; Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010) (Figure 6).

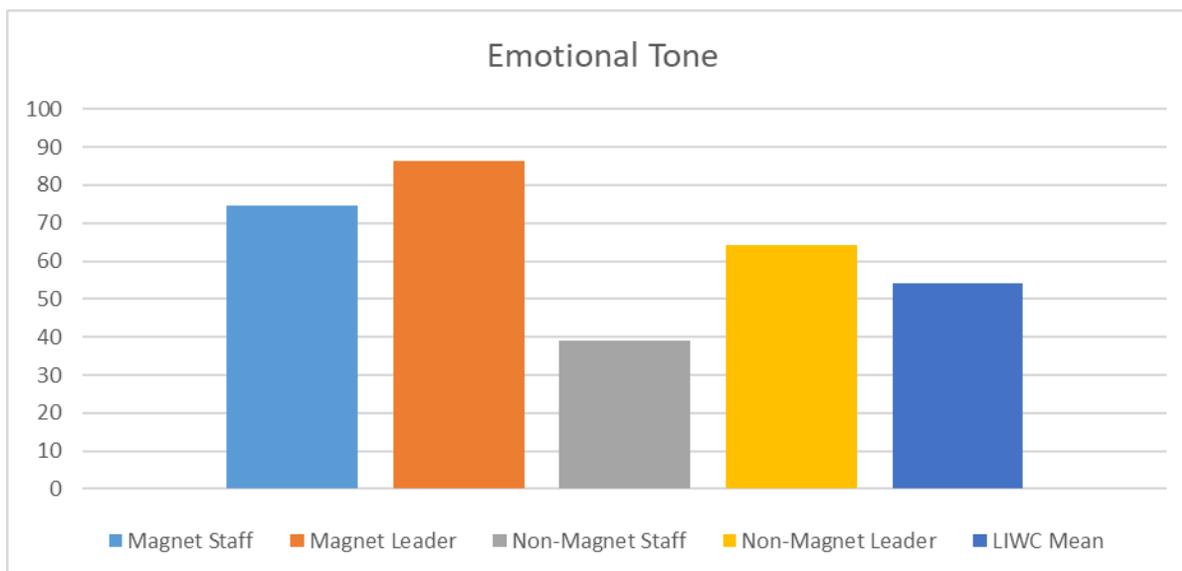


FIGURE 6. LIWC emotional tone dimension means for all participant groups.

## Time Orientation

The dimension *time orientation* includes the subcategories of *future focus*, *present focus*, and *past focus*, which reveal the timeframe where the speaker's voice is centered based on their use of future tense, present tense, and past tense verbs (Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010). The magnet nursing leaders scored the highest for the subcategory of *future focus* at 1.92 compared to the LIWC mean of 1.42, suggesting that their collective words were the most future-based (Pennebaker, Boyd, et al., 2015). All other participant groups were near or below the mean in this area. All participant groups scored higher than the LIWC mean of 9.96 in the subcategory of *present focus*, however, the non-magnet leaders were the highest with a score of 17.33, suggesting that this group's thoughts and words most revolved around current time and events (Pennebaker, Boyd, et al., 2015). For the subcategory of *past focus*, all participant groups scored lower than the LIWC mean of 4.64, however, the collective mean of the non-magnet staff was the highest at 3.39, suggesting that from the sampled groups, the non-magnet staff were more focused on the past than their peers (Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010). As a whole, the participant groups in general appeared to be most rooted in a present focus (Figure 7).

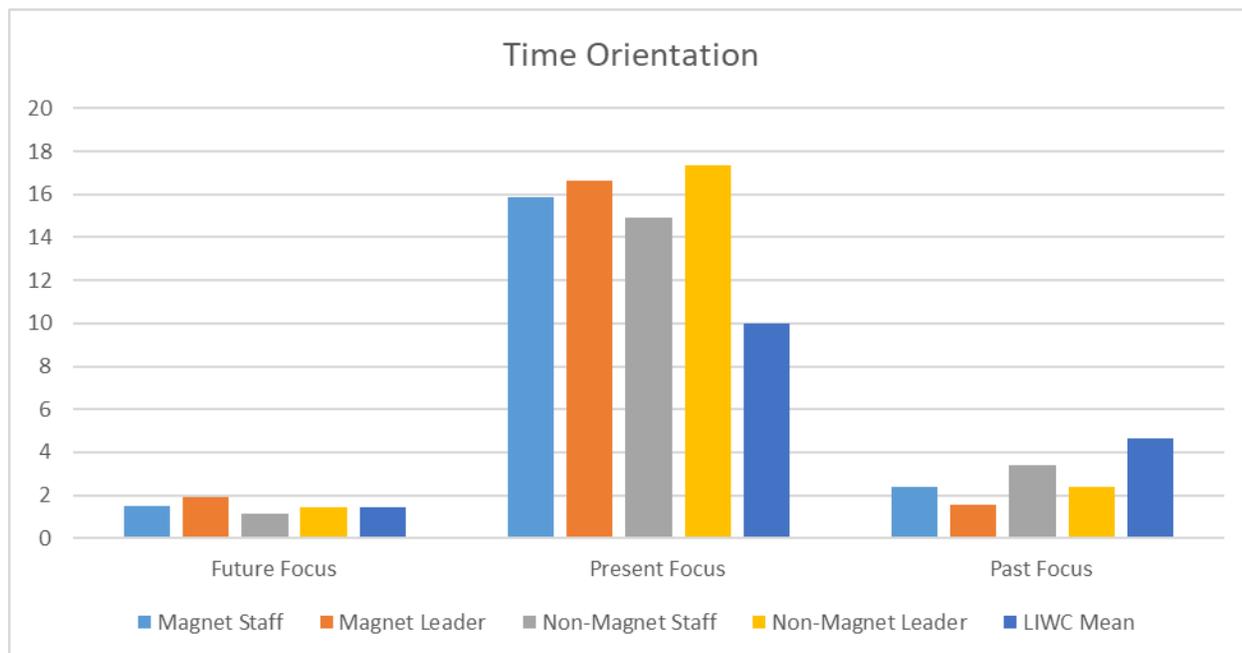


FIGURE 7. LIWC time orientation dimension means for all participant groups.

## Drives

The *drives* dimension includes the subcategories of *risk*, *reward*, and *power*. Analysis of these results lends insight into the motivation behind the speaker's communicated message (Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010). Interestingly, all participant groups scored higher than the LIWC mean of .47 for the subcategory of Risk, with the magnet nursing leaders scoring the highest at 1.28. This suggests that all participants were driven to communicate their message based on perceived concerns or dangers, but this was most pronounced amongst the magnet nursing leaders (Pennebaker, Boyd, et al., 2015). For the subcategory of *reward*, the magnet staff nurses scored the highest at 1.49 compared to the LIWC mean of 1.46, while all other participant groups scored lower than the LIWC mean. This would indicate that the drive underlying the magnet nurses' communicated message was a perceived benefit or bolstered value (Pennebaker, Boyd, et al., 2015). The fact

that magnet nursing leaders scored highest for *risk*, while the magnet staff nurses scored highest in the area of reward is striking. Each group's collective means for the subcategory of *power* exceeded the LIWC mean of 2.35, however, the non-magnet nursing leaders scored the highest with a score of 3.32. This suggests that the non-magnet nursing leaders' speech was more driven from a place of superiority than their peers (Pennebaker, Boyd, et al., 2015). Please see Figure 8 for a visual breakdown of these values.

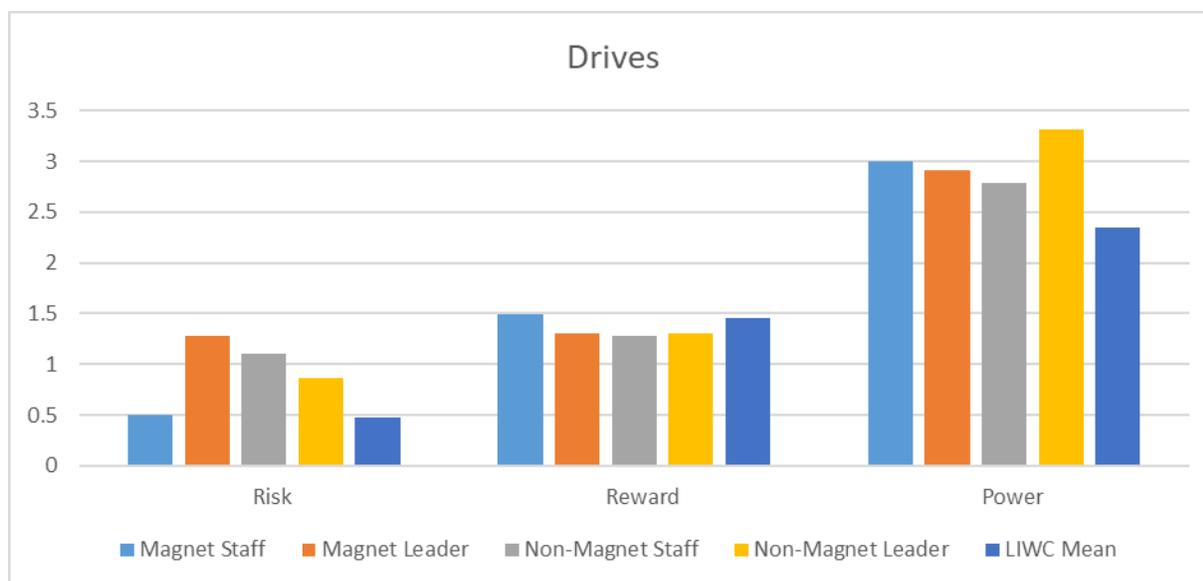
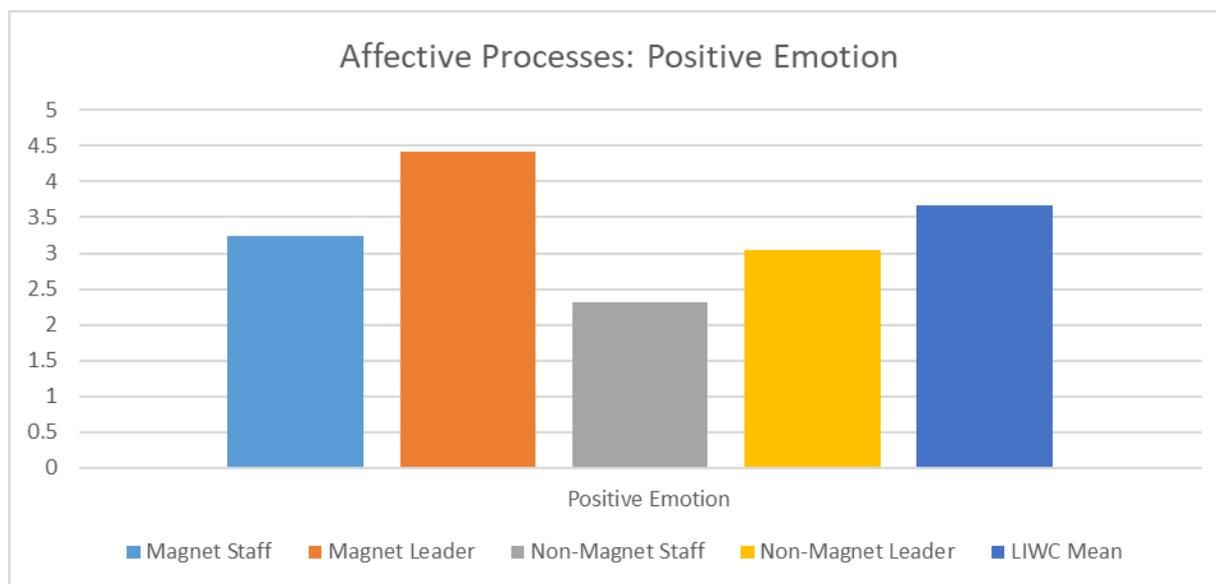


FIGURE 8. LIWC drives dimension means for all participant groups.

### Affective Processes

The *affective processes* dimension reveals both the speaker's experience and reaction surrounding certain events. This dimension is broken down into the subcategories of positive emotion and negative emotion, with the negative emotion category including elements of anxiety, anger, and sadness (Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010). For the subcategory of positive emotion, the magnet nursing leaders collective mean of 4.42 exceeded the LIWC mean of 3.67, suggesting that this group had

the most positive outlook surrounding the topics of discussion (Pennebaker, Boyd, et al., 2015). Conversely, all other participant groups' means were lower than the LIWC mean. Please refer to Figure 9 for a breakdown of these results.



**FIGURE 9.** LIWC positive emotion dimension means for all participant groups.

Looking at the negative emotion subcategory of anxiety reveals that the non-magnet staff nurses are the most anxious with a collective mean of .45 compared to the LIWC mean of .31 (Pennebaker, Boyd, et al., 2015). Although the magnet staff nurses scored lower than the LIWC mean in the areas of anger and sadness, they were higher than all the participant groups, suggesting that the non-magnet staff nurses are experiencing the highest levels of negative emotion. Magnet staff nurses had the lowest levels of anxiety (0.09) and sadness (0.13) compared to the LIWC means of 0.31 and 0.41 respectively. Additionally, magnet nursing leaders had the lowest collective mean for anger at .05 compared to the LIWC mean of .54 (Pennebaker, Boyd, et al., 2015). Review of these findings reveals that the participants working in magnet-designated facilities had the highest levels of positive emotion and the lowest levels of

negative emotion surrounding their reactive experience regarding the subject matters discussed.

Please see Figure 10 for a visualization of these parameters.

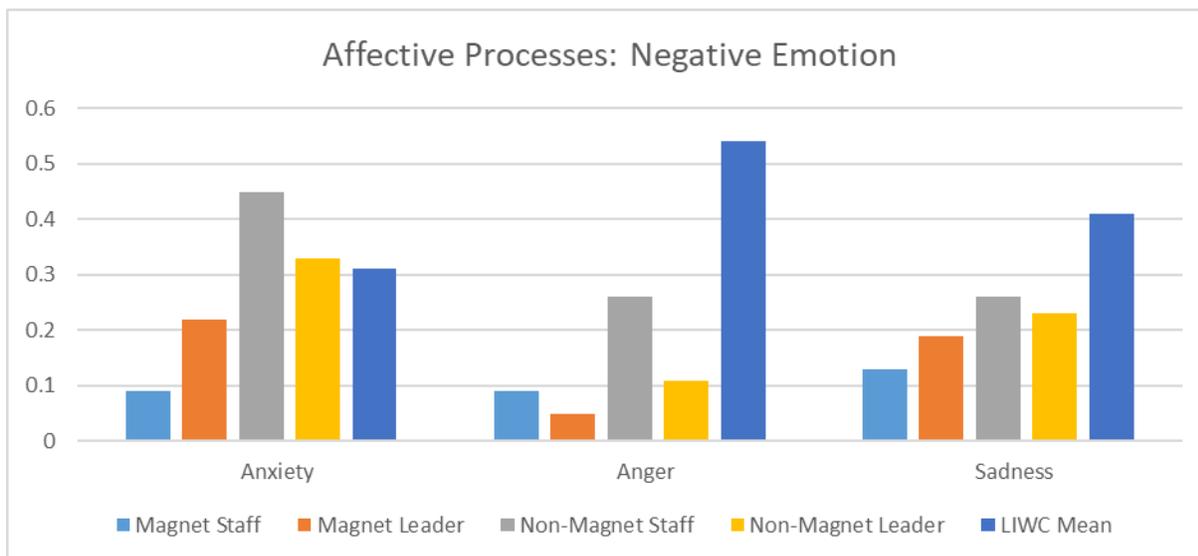


FIGURE 10. LIWC negative emotion dimension means for all participant groups.

### Cognitive Processes

The *cognitive processes* dimension reveals how a speaker processes and in turn interprets information as a way of understanding their environment. This dimension includes the subcategories of *differentiation*, *certainty*, *tentativeness*, *discrepancies*, *causation*, and *insight* (Pennebaker, Booth, et al., 2015; Pennebaker, Boyd, et al., 2015; Tausczik & Pennebaker, 2010). For the subcategory of *differentiation*, all participant groups' means exceeded the LIWC mean of 2.99; however, the non-magnet staff members had the highest mean of 4.82. This suggests that this group is especially astute at differentiating between ideas, people, or entities (Pennebaker, Booth, et al., 2015). Interestingly, out of the participant groups, the non-magnet leaders scored the lowest at 3.82, which indicates a potential disparity between the nursing leadership and staff nurses within non-magnet organizations. In the area of certainty, the non-magnet staff nurses'

mean of 1.18 was lower than the LIWC mean of 1.35 (Pennebaker, Boyd, et al., 2015). All other groups' means exceeded the LIWC mean, however, the magnet nursing leaders had the highest levels of certainty in the way they understand their environment and interpret information. All groups showed above-average levels of *tentativeness*, however, the magnet staff were the most so at 3.96 compared to the LIWC mean of 2.52 (Pennebaker, Boyd, et al., 2015). The contrast between the magnet nursing leaders being the most certain in how they process information and the magnet staff nurses being the most tentative is striking.

The *cognitive processes* subcategory of *discrepancies*, revealed that all groups exceeded the LIWC mean of 1.44, however, the non-magnet staff had the highest mean of 2.53 in this area, while the magnet leaders showed the lowest mean of 1.96 (Pennebaker, Boyd, et al., 2015). For the subcategory of *causation*, all groups showed means that exceeded the LIWC mean of 1.40. The non-magnet staff had the highest collective mean score of 2.65 suggesting that this group had the strongest tendency to process things through the lens of cause and effect. For the subcategory of *Insight*, all groups again had a mean score that exceeded the LIWC mean of 2.16, however, the most insightful group was the magnet staff nurses with a mean of 4.03 (Pennebaker, Boyd, et al., 2015). The group with the least insight was the non-magnet staff nurses with a mean score of 2.57. Please see Figure 11 for a visual representation.

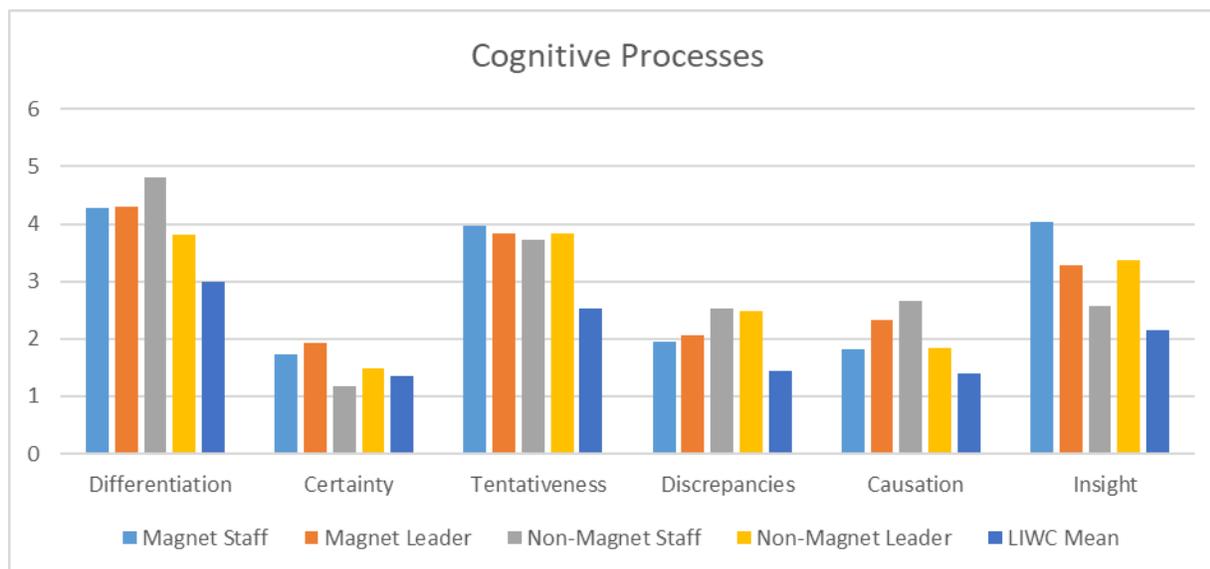
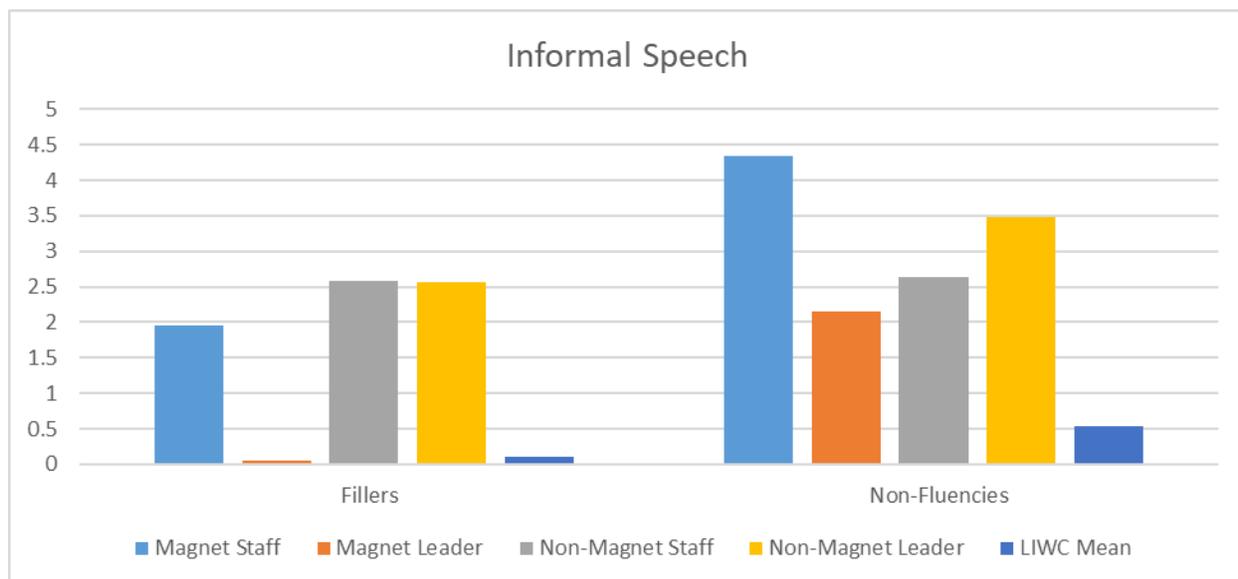


FIGURE 11. LIWC cognitive processes dimension means for all participant groups.

### Informal Speech

Finally, the *informal speech domain* is used to look at components of speech that use space and time, but do not add substantive content. This domain includes the subcategories of *fillers*, which are words used out of context such as “I mean,” “you know,” and “like;” and non-fluencies, which include utterances such as “umm,” “err,” and “hm.” Magnet nursing leaders used the least number of fillers with a score of 0.06 compared to the LIWC mean of 0.11, whereas the non-magnet staff nurses used the most at 2.58 (Pennebaker, Boyd, et al., 2015). All groups had a higher than average use of non-fluencies, however, the magnet nursing leaders were again the lowest at 2.16 compared to the LIWC mean of .54 and the magnet staff nurses used the most with a mean of 4.34 (Pennebaker, Boyd, et al., 2015) (Figure 12).



*FIGURE 12.* LIWC informal speech dimension means for all participant groups

In summary, all participant groups processed thought in a personal and narrative manner as opposed to a formal or hierarchical manner. Non-magnet nurses were the most tentative and anxious contrasted to the non-magnet leaders who were the most confident in their areas of expertise. Despite the non-magnet leaders' high confidence, they were the least authentic in how they communicated information. This does not necessarily imply they were being deceitful, but rather careful and guarded with what they chose to share. In contrast, the magnet nurses were the most authentic with a high score of 59.24 compared to the LIWC mean of 49.17.

All participant groups were most heavily centered in a present-focus mindset as opposed to past or future, however, from the groups, the magnet leaders were the most forward-thinking. All participant groups' speech was highly motivated by power; however, this was most pronounced amongst the non-magnet leaders. In the areas of risk and reward drives – magnet leaders scored highest for risk and magnet nurses scored the highest for reward. Magnet leaders

ranked the highest for *positive emotion*. This was in contrast to the non-magnet nurses, who had the lowest level of positive emotion and the highest levels of anxiety, anger, and sadness.

### Answering the Research Questions

The results of the thematic and natural language processing analysis have been presented. Following are the answers to the research questions used to guide this study.

#### Research Question 1

*How are system-level events defined by nurses and nursing leaders in magnet-designated and non-magnet-designated hospitals?*

Answers to this question emerged in the categories of *broken systems, communication, hierarchy, processes, change, workforce, workload, staff wellness, and threats to patient safety*. The system-level events discussed included loss of magnet status, poaching employees, people placed in the wrong positions, inadequate staffing, new leaders who lack transparency, changes without full knowledge of staff and unit needs, lack of appropriate policies, turnover and loss of experienced nurses, increased stress the impacts the whole system, overworked and burned out staff, inadequate provision of necessary resources, and lack of processes to fix safety issues (Table 33).

TABLE 33. *System-level events.*

Event	Participants	Category/Subcategory
Losing magnet status (n=1), (t=1) t/(n+t) = 0.50	Non-Magnet Nurse (n=1)	Broken Systems
Poaching employees from one subsystem to another (n=1), (t=) t/(n+t) = 0.50	Magnet Leader (n=1)	Broken Systems

TABLE 33 – *Continued*

<b>Event</b>	<b>Participants</b>	<b>Category/Subcategory</b>
People placed in the wrong positions (n=1), (t=1) $t/(n+t) = 0.50$	Magnet Leader (n=1)	Broken Systems
Inadequate staffing (n=2), (t=2) $t/(n+t) = 0.50$	Non-Magnet Nurse (n=1) Non-Magnet Leader (n=1)	Broken Systems Threats to Patient Safety
New leaders who lack transparency (n=1), (t=1) $t/(n+t) = 0.50$	Magnet Nurse (n=1)	Communication
Changes without full knowledge of staff and unit needs (n=3), (t=3) $t/(n+t) = 0.50$	Non-Magnet Nurse (n=1) Magnet Nurse (n=1) Non-Magnet Leader (n=1)	Hierarchy Change
Lack of appropriate policies (n=2), (t=3) $t/(n+t) = 0.60$	Magnet Nurse (n=1) Magnet Leader (n=1)	Processes Change Threats to Patient Safety
Turnover and loss of experienced nurses (n=2), (t=3) $t/(n+t) = 0.60$	Non-Magnet Nurse (n=1) Magnet Nurse (n=2)	Workforce Threats to Patient Safety
Increased stress that impacts entire system (i.e. COVID-19) (n=1), (t=1) $t/(n+t) = 0.50$	Non-Magnet Nurse (n=1)	Workload
Overworked, burned out staff (n=1), (t=1) $t/(n+t) = 0.50$	Non-Magnet Leader (n=1)	Workload
Inadequate provision of necessary resources to staff (i.e. PPE) (n=1), (t=1) $t/(n+t) = 0.50$	Magnet Nurse (n=1)	Staff Wellness

Some system-level events were informed from more than one participant group.

Interestingly, the magnet leaders informed two unique system-level events involving personnel.

The first was that of *one subsystem poaching employees from another subsystem*, and the other

concerned the *placement of individuals in the wrong positions*. This falls in line with the magnet leaders having the highest levels of analytical thinking as demonstrated by LIWC analysis. The magnet leaders and magnet nurses shared one system-level event, which was *lack of appropriate processes for safety issues*.

Magnet nurses uniquely contributed information regarding the system-level events of *new leaders who lack transparency and inadequate supplies*. Magnet staff nurses felt that they worked in healthy organizations. However, as the participant group that scored highest in LIWC variable of authenticity, they were transparent regarding events that hold the potential for harm. Non-magnet leaders contributed information that uniquely informed the system-level event of *overworked and burned out staff*. Non-magnet leaders held the highest LIWC score for clout, implying their level of confidence in their expertise. Through interviewing these non-magnet leaders, it was clear that they felt as though it was their job to champion for their nurses who are struggling in this way.

Non-magnet nurses contributed unique information that informed the system-level events of *losing magnet status and increased stress that impacts the entire system*. Non-magnet nurses scored very high in anxiety, anger, and sadness and were driven highly by risk. In light of this, they seemed to recognize the risk that these events held and felt the resulting impact negatively. Non-magnet nurses and non-magnet leaders both contributed information that informed the system-level event of *change without full knowledge of staff or unit needs*. A review of LIWC variables reveals the non-magnet leaders' high level of insight. In concert with non-magnet nurses' high level of causation abilities, this collaboratively informed system-level event is not surprising. Finally, magnet nurses and non-magnet leaders contributed information that

illuminated the system-level event of *turnover and loss of experienced nurses*. Both groups scored more highly than the magnet leaders and non-magnet staff in the area of insight, suggesting that they are astute at understanding the ramification this shift has had on their respective health systems (Figure 13).

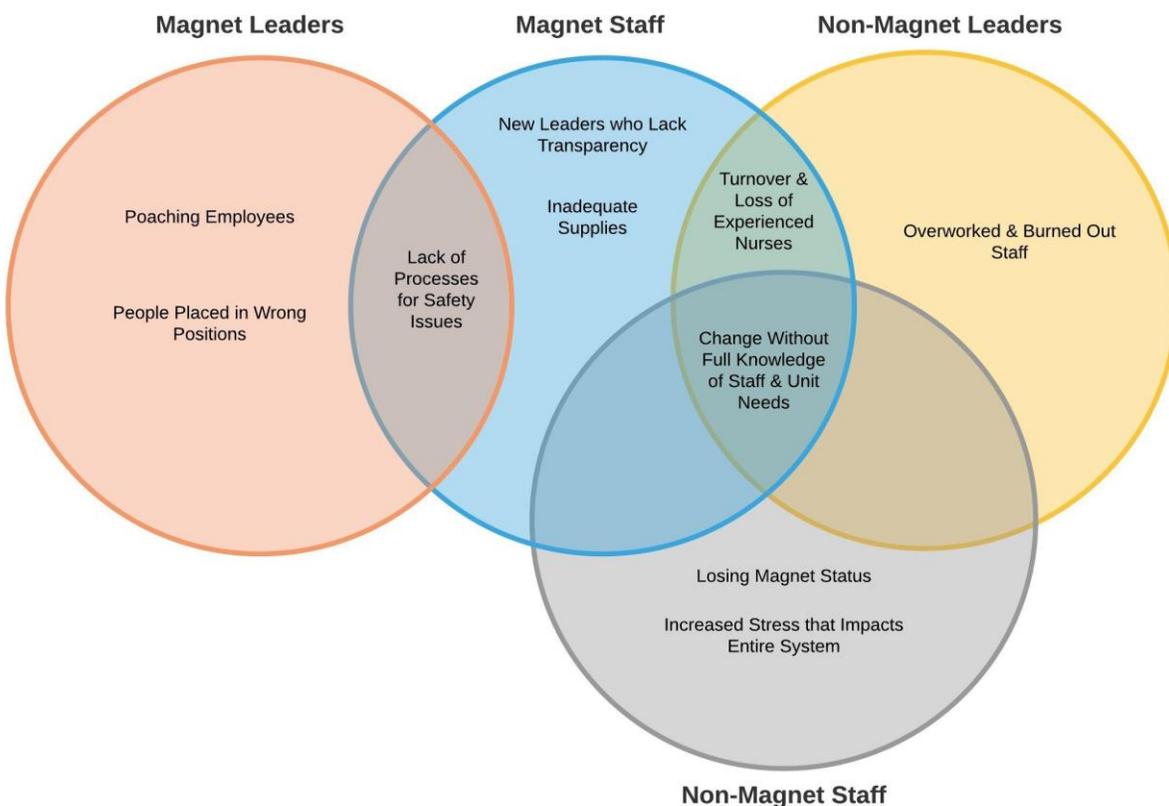


FIGURE 13. Participant group contributors to system-level event information.

## Research Question 2

*What are the strengths and weaknesses of the current method of communicating system-level events?*

The answers to this question emerged in the categories of *broken systems*, *communication*, *responsibility*, *shared governance*, *hierarchy*, *approach*, *processes*, *change*,

*leadership, workforce, workload, devalued staff, peer pressure, staff wellness, patient care, and threats to patient safety.*

Strengths of communication that were highlighted by magnet leaders *included issues don't get lost in reporting, first-party conversations prevent message distortion, strengthened when leadership held accountable, and staff see evidence that issue was addressed.* Magnet leaders had the most positive things to say about current communication patterns. These patterns were focused outward regarding the benefits felt by others and the system. This may be in part related to magnet leaders having the highest affective process of positive emotion.

Magnet staff shared strengths they perceived as *being neutral and not aggressive* and that *electronic methods of communicating increase access.* These benefits were inward-focused in that this group was looking at ways in which they were positively impacted. Non-magnet leaders contributed information regarding the strength of having a *consistent schedule to discuss safety events.* This participant group was the most driven by power, which may relate to their affinity for having consistent means to communicate with staff.

Non-magnet nurses did not solely contribute information toward any communication strengths but had shared contribution with two other groups. Based on this group having the most negative emotion, they may have had difficulty appreciating or speculating about positive attributes of communication. Magnet staff nurses, non-magnet nurses, and non-magnet leaders all contributed information that informed the strength of *leadership visibility, approachability, and accessibility.* The importance of this to these participant groups was quite evident through the interview process. Magnet and non-magnet leaders contributed information that informed the strength of *effective multidisciplinary communication increases continuity of care.* Through their

interviews, it was clear the role that multidisciplinary communication played in optimizing patient care (Table 34; Figure 14).

TABLE 34. *Strengths of communication.*

<b>Strength</b>	<b>Participants</b>	<b>Category</b>
Issues don't get lost in reporting through robust system (n=1), (t=2) $t/(n+t) = 0.67$	Magnet Leader (n=1)	Communication Patient Care
Transparent communication appreciated by staff and creates positive peer pressure to also share openly (n=3), (t=4) $t/(n+t) = 0.57$	Magnet Leader (n=2) Non-Magnet Leader (n=1)	Communication Shared Governance Peer Pressure
First party conversations prevent message distortion (n=1), (t=1) $t/(n+t) = 0.50$	Magnet Leader (n=1)	Communication
Effective multidisciplinary communication increases continuity of care (n=3), (t=1) $t/(n+t) = 0.25$	Magnet Nurse (n=1) Non-Magnet Leader (n=2)	Communication Approach Patient Care
Communication is neutral and not aggressive (n=1), (t=1) $t/(n+t) = 0.50$	Magnet Nurse (n=1)	Communication
Electronic messaging increases access and eases communication (n=1), (t=3) $t/(n+t) = 0.75$	Magnet Nurse (n=1)	Communication
Strengthened when leadership held accountable (n=1), (t=1) $t/(n+t) = 0.50$	Magnet Leader (n=1)	Responsibility
Consistent schedule to discuss safety events (n=1), (t=1) $t/(n+t) = 0.50$	Non-Magnet Leader (n=1)	Approach

TABLE 34 – Continued

Strength	Participants	Category
Staff see the evidence that the issue was addressed (n=1), (t=1) t/(n+t) = 0.50	Magnet Leader (n=1)	Change
Leadership visibility, approachability, and accessibility (n=4), (t=5) t/(n+t) = 0.56	Non-Magnet Nurse (n=1) Magnet Nurse (n=2) Non-Magnet Leader (n=1)	Leadership

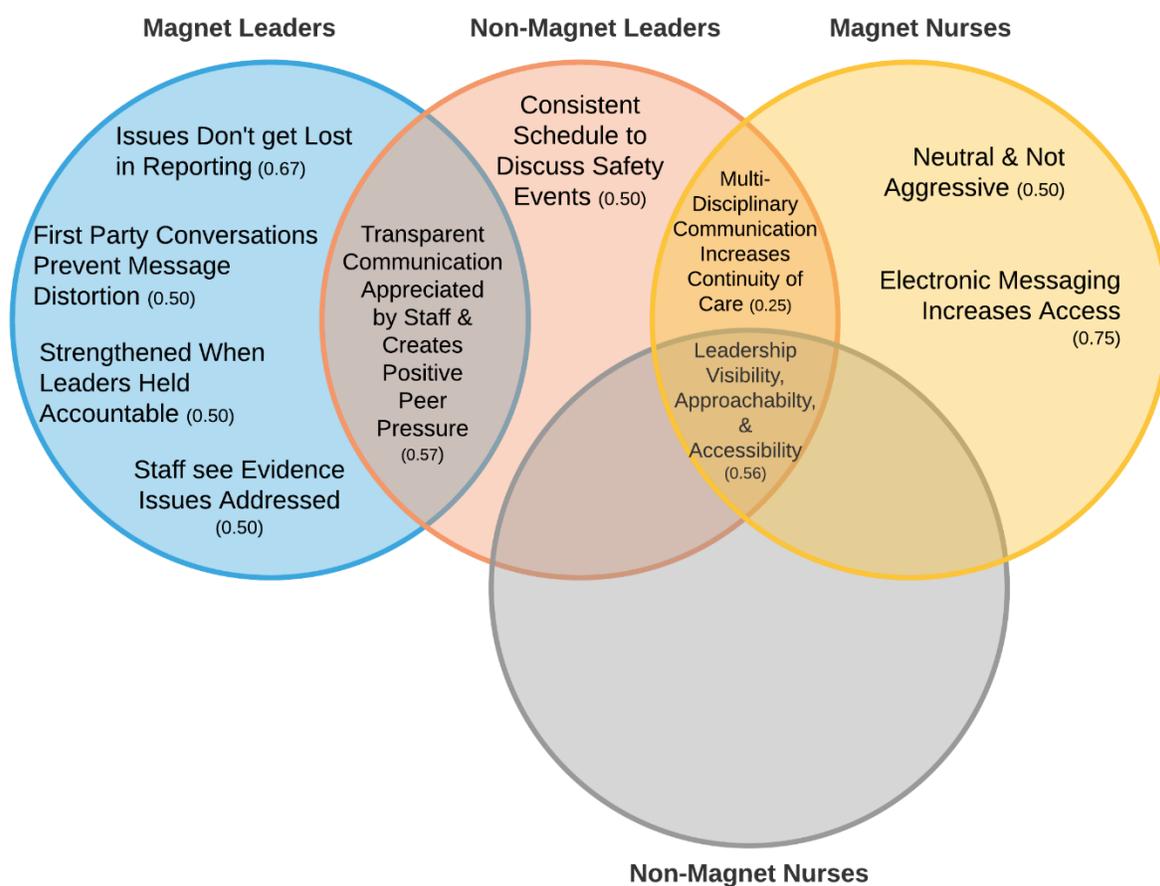


FIGURE 14. Participant group contributors to communication strengths.

Weaknesses of the current methods of communicating system-level events that emerged included overconfident leaders are not listening and seen as weak when they do ask questions, missing loop in chain of communication, feeling unheard and devalued, conflicting expectations causes delays, not being held accountable, newer nurses lack knowledge base, physicians falling asleep on the phone, challenging and takes longer in larger organizations, and fear of others' perceptions hampers.

Magnet leaders contributed information regarding weaknesses *conflicting expectations can cause delays and challenging and takes time in larger organizations*. The magnet leaders' high positive emotional tone may have informed this perspective. The magnet leaders did not have bad things to say about the communication itself, but rather what the challenges to good communication are. Conversely, non-magnet leaders contributed information regarding the weakness of *not being held accountable*. This likely falls back to this group's high motivational drive of power in how they related and spoke about the subject matter. The magnet leaders and non-magnet leaders both contributed information that informed *fear of others' perceptions hampers*. This was likely informed by both groups' high level of insight as well as their highest levels of present focus.

Magnet nurses provided information that informed the weaknesses of *physicians falling asleep on the phone, overconfident leaders not listening and seen as weak when they ask questions, and newer nurses lack knowledge base*. Although the magnet nurses did not have the highest levels of analytical thinking, they had a high level of clout or confidence regarding the content area. This paired with having the highest level of authenticity likely influenced their perceptions.

The non-magnet nurses contributed to the weakness of *feeling unheard and undervalued*. This again fits with their negative emotions of anger, sadness, and anxiety. This was so clear during interviews. This group is really hurting. The magnet nurses, non-magnet nurses, and non-magnet leaders all contributed information that informed the weakness of *missing loop in chain of communication*. Through the interviews, it was clear that they were speaking from personal experience regarding the detriment that this causes (Table 35; Figure 15).

TABLE 35. *Weaknesses of communication.*

<b>Weakness</b>	<b>Participants</b>	<b>Category</b>
Overconfident leaders not listening and seen as weak when they ask questions (n=2), (t=2) $t/(n+t) = 0.50$	Magnet Nurse (n=2)	Broken Systems
Missing Loop in chain of communication (n=4), (t=4) $t/(n+t) = 0.50$	Non-Magnet Nurse (n=1) Magnet Nurse (n=1) Non-Magnet Leader (n=2)	Broken Systems Communication Workforce
Feeling unheard and devalued (n=1), (t=3) $t/(n+t) = 0.75$	Non-Magnet Nurse (n=1)	Communication Devalued Staff
Conflicting expectations causes delays (n=1), (t=1) $t/(n+t) = 0.50$	Magnet Leader (n=1)	Communication
Not being held accountable (n=1), (t=2) $t/(n+t) = 0.67$	Non-Magnet Leader (n=1)	Communication Responsibility
Newer nurses lack knowledge base (n=1), (t=1) $t/(n+t) = 0.50$	Magnet Nurse (n=1)	Hierarchy
Physicians falling asleep on the phone (n=1), (t=1) $t/(n+t) = 0.50$	Magnet Nurse (n=1)	Approach

TABLE 35 – Continued

Weakness	Participants	Category
Challenging and takes longer in larger organizations (n=2), (t=3) t/(n+t) = 0.60	Magnet Leader (n=2)	Change Workload
Fear of others' perceptions hampers (n=2), (t=2) t/(n+t) = 0.50	Non-Magnet Leader (n=1) Magnet Leader (n=1)	Peer Pressure

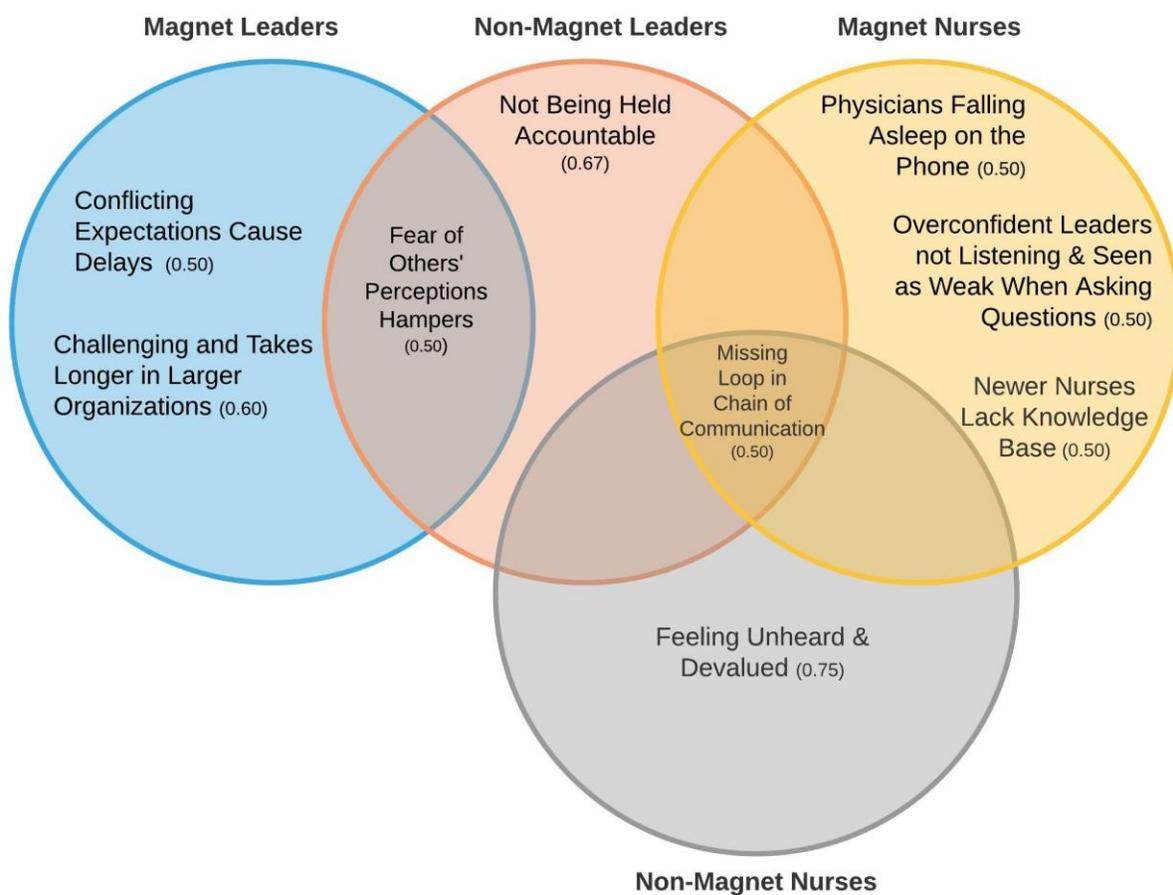


FIGURE 15. Participant group contributors to communication weaknesses.

### Research Question 3

*What suggestions are provided to improve communication of system-level events?*

Suggestions for improving communication regarding system-level events varied across participants. Answers to this question emerged in the categories of *communication, responsibility, shared governance, hierarchy, approach, processes, decision-making, leadership, workload, valued staff, devalued staff, safety events, peer pressure, patient care and threats to patient safety.*

Magnet leaders contributed specific suggestions regarding *communicating problems as they are identified.* This ties back to the focus of magnet leaders on using safety events as opportunities for learning and also fits with their high level of present focus as shown by LIWC analysis. A magnet staff nurse contributed the suggestion of *not communicating with someone falling asleep* as this is a problem frequently encountered at night when contacting physicians for orders.

Magnet leaders, magnet nurses, and non-magnet leaders all contributed to the suggestion of *leaders cultivating environments that empower staff.* Based on the contributors and interviews, it could be argued that the magnet leaders are successfully doing that and the non-magnet leaders are not. Magnet leaders and non-magnet nurses contributed to the suggestion of *avoiding punitive measures* and that *leaders should listen and be tuned in to their departments.* The magnet leaders were speaking from what they do and the non-magnet nurses were speaking of what they hoped for.

Both the magnet leaders and non-magnet leaders contributed to the suggestions of *focusing on patient care and using multiple modes of communication.* This fits with both groups

being rooted in a present-focus. All groups contributed to the suggestions of involving key stakeholders and being consistent, deliberate, and clear (Table 36; Figure 16).

TABLE 36. *Suggestions to improve communication.*

<b>Suggestions</b>	<b>Participants</b>	<b>Category</b>
Involve key stakeholders (n=9), (t=15) t/(n+t) = 0.63	Non-Magnet Nurse (n=2) Magnet Nurse (n=2) Non-Magnet Leader (n=2) Magnet Leader (n=3)	Communication Shared Governance Hierarchy Approach Change Valued Staff Threats to Patient Safety
Communicate problems when they are identified (n=2), (t=2) t/(n+t) = 0.50	Magnet Leader (n=2) Magnet Leader (n=1)	Communication Safety Events
Be consistent, deliberate, and clear (n=8), (t=12) t/(n+t) = 0.60	Non-Magnet Nurse (n=1) Magnet Nurse (n=1) Non-Magnet Leader (n=2) Magnet Leader (n=4)	Communication Responsibility Approach Processes Decision-Making Leadership Valued Staff Safety Events
Use multiple modes of communication (n=2), (t=2) t/(n+t) = 0.50	Non-Magnet Leader (n=1) Magnet Leader (n=1)	Communication Safety Events
Do not communicate with someone falling asleep (n=1), (t=1) t/(n+t) = 0.50	Magnet Nurse (n=1)	Communication
Avoid punitive measures (n=3), (t=5) t/(n+t) = 0.63	Non-Magnet Nurse (n=2) Magnet Leader (n=1)	Communication Responsibility Safety Events
Leaders cultivate environments to empower staff (n=6), (t=12) t/(n+t) = 0.67	Magnet Nurse (n=1) Non-Magnet Leader (n=2) Magnet Leader (n=3)	Leadership Valued Staff Safety Events Peer Pressure Patient Care Threats to Patient Safety

TABLE 36 – Continued

Suggestions	Participants	Category
Leaders should listen and be tuned in to their departments (n=4), (t=5) t/(n+t) = 0.56	Non-Magnet Nurse (n=2) Magnet Leader (n=2)	Leadership Workload Valued Staff Devalued Staff Safety Events
Focus on the Patient (n=2), (t=2) t/(n+t) = 0.50	Non-Magnet Leader (n=1) Magnet Leader (n=1)	Patient Care

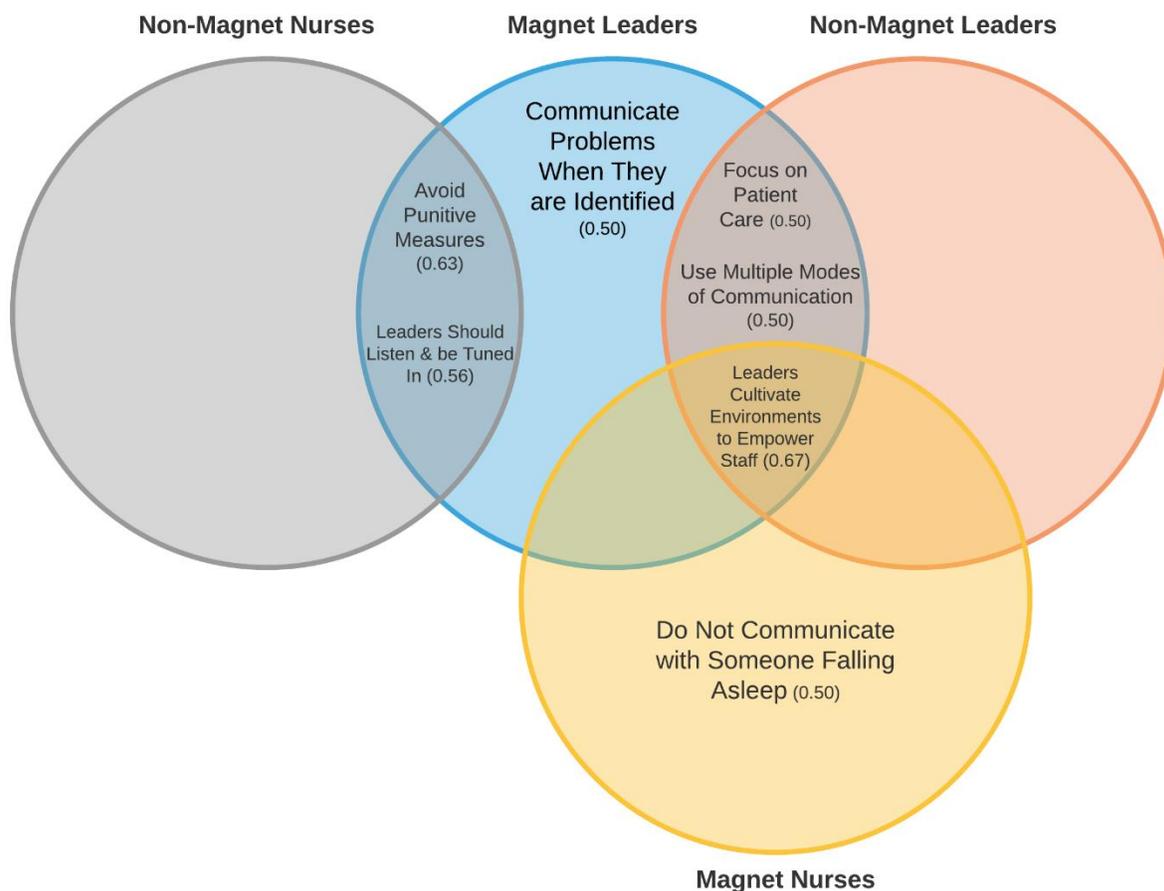


FIGURE 16. Participant group contributors to communication suggestions.

### Within-Methods Triangulation

This study used within-methods triangulation, thematic content analysis and use of LIWC to gain added perspective toward understanding system events at magnet and non-magnet hospitals. Application of within-methods triangulation involved synthesizing iterative comparisons and analyses of thematic analysis results with LIWC analysis (Galatzan, 2019; Renz et al., 2018). The research questions were answered using both forms of data analysis and is depicted below (Figure 17).

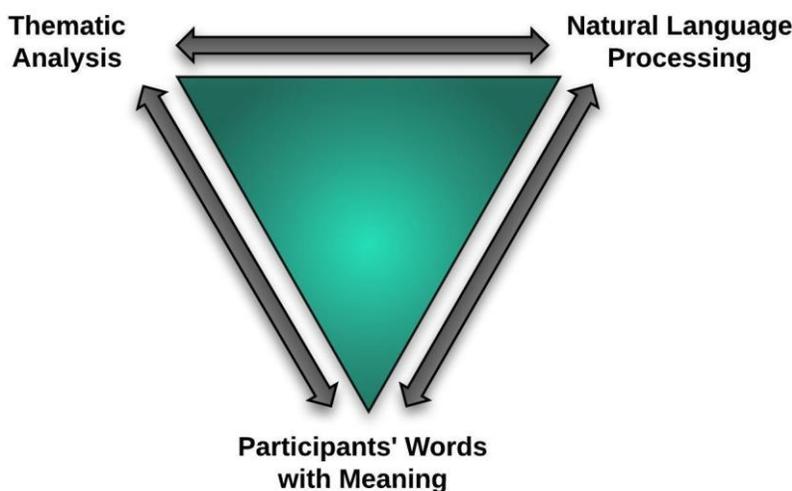


FIGURE 17. Within-methods triangulation data analysis. (Galatzan, 2019; Renz et al., 2018)

### Summary

In conclusion, here I have presented participant demographic information in addition to results from inductive thematic analysis and natural language processing. Furthermore, the application of the Goodwin statistic has been done to highlight areas of particular emphasis. In respect to *research question 1*, many of the system-level events that emerged revolved around disconnect between perceived and actual needs of nurses working in the hospital. Through the

process of conducting the interviews, it was perceived that non-magnet nurses and leaders were speaking of unhealthy experiences they were personally living through in their respective organizations. This was confirmed through a review of the LIWC variables, which revealed non-magnet nurses to be collectively the lowest in positive emotion and the highest in anxiety, anger, and sadness.

Through analysis to answer *research question 2* regarding the current strengths and weaknesses of communication methods, the importance of communication to the participants was clear, as this was the most highly emphasized category that emerged from the data. Magnet leaders showed the tendency of thinking about things in a positive light, even when speaking of weaknesses of communication patterns. Non-magnet leaders spoke largely from a position of power and their suggestions to improve communication reflected this. Magnet nurses spoke to strengths of communication from personal experience, whereas non-magnet nurses highlighted the negative of feeling unheard and unvalued.

In looking to answer *research question 3* regarding suggestions for improving communication, there was much more commonality seen between the participant groups. Magnet leaders, magnet nurses, and non-magnet leaders all contributed to the suggestion of leaders cultivating environments that empower staff. Based on interview data, magnet nurses feel much more empowered than their non-magnet counterparts as evidenced by their high emotional tone and highest drive of reward. Non-magnet nurses and magnet leaders contributed to the suggestion of *avoiding punitive measures* and that *leaders need to be listening and tuned in to their departments*. Through the interviews, it was clear this was what the magnet leaders

practiced and what the non-magnet nurses yearned for. As one non-magnet nurse put it, *“I’m getting really tired of my, like, organization because nobody is listening.”* (ABD5)

## CHAPTER V: DISCUSSION

The purpose of this research was to increase understanding of the perceptions of nurses and nursing leaders from magnet-designated and non-magnet-designated hospital organizations regarding what system-level events or circumstances may degrade hospital system health and compromise patient safety. This chapter will be used to answer the research questions through a discussion of the themes, categories, and subcategories that emerged. Additionally, the conceptual framework discussed in Chapter II will be reevaluated in the context of the data analysis results. Following will be a review of the study's limitations and strengths. Finally, plans for future work will be discussed.

### Research Purpose

Research for this study was used to increase understanding of nurses' perceptions of system-level events they are experiencing and how those are observed to influence patient safety. Analysis of participants' words from both magnet and non-magnet designated organizations across the country has served to give a glimpse into these perceptions. The study results and answered research questions discussed in Chapter IV will be reviewed in this section.

### Main Findings

#### Research Question 1

To identify an answer to the first research question, *“How are system-level events defined by nurses and nursing leaders in magnet-designated and non-magnet-designated hospitals?”* audio recordings of semi-structured interviews were conducted. Thematic analysis of the audio recorded transcripts was done to answer the research question. Inductive thematic coding served to reveal what was said, natural language processing was applied to reveal how things were said,

and the Goodwin statistic was applied to highlight aggregate areas of emphasis (Goodwin & Goodwin, 1985; LIWC.net, n.d.). Answers to this question emerged in the categories of *broken systems, communication, hierarchy, processes, change, workforce, workload, staff wellness, and threats to patient safety*.

Magnet leaders identified the system-level events involving personnel rather than themselves personally. These included *poaching employees from one subsystem to another* and *placing people in the wrong positions*. Both of these events emerged in the category of *broken systems*, which had a substantial level of emphasis with a Goodwin statistic of 0.74. Magnet leaders had the highest levels of analytical thinking as demonstrated by running their words through natural language processing (LIWC, n.d.). Magnet leaders and magnet nurses both contributed information that informed the system event of *lack of appropriate processes for safety issues*. This was informed with data that emerged in the categories of *processes, change, and threats to patient safety*. *Threats to patient safety* was highly emphasized with a Goodwin statistic of 0.80.

Magnet nurses were found through analysis with LIWC to be the most authentic and transparent with their communication. They contributed information about system-level events involving *bringing in new leaders who lack transparency* and *having inadequate supplies*. These nurses felt that they worked in healthy environments but were forthright with elements they viewed as unhealthy. One magnet nurse said, “*I would say this is an unhealthy aspect of a healthy organization*” (ABD7). Non-magnet leaders, who had the highest level of *clout*, or confidence and expertise, described the system level event of *overworked and burned out staff*. This emerged in the category of *workload*, which had the second-highest level of emphasis with

a Goodwin statistic of 0.82. Non-magnet nurses described the events of *losing magnet designation* and *increased stress that is felt throughout a system*. These emerged in the categories of *broken systems* and *workload*. Interviews, thematic analysis, and natural language processing revealed that non-magnet nurses are incredibly unhappy and their underlying motivation for communication is risk.

Non-magnet nurses and non-magnet leaders contributed information regarding the system-level event of *change that occurs without full knowledge of staff or unit needs*. Through speaking with these individuals, it was clear they were talking about their personal experiences. This partially emerged from the *change* category, which had a strong emphasis with a Goodwin statistic of 0.78. LIWC analysis reveals that non-magnet leaders are highly insightful and non-magnet nurses are cued in to matters of causation. Magnet nurses and non-magnet nursing leaders informed the system-level event of *turnover and loss of experienced nurses*. This information emerged from the *workforce* and *threats to patient safety* categories, which were strongly emphasized with Goodwin statistics of 0.74 and 0.80 respectively. Both of these groups scored higher than the other participant groups in insight, suggesting that have the discernment necessary to realize the impact this shift is having on their respective healthcare systems.

These findings cohere with literature that the impetus of many adverse events are system-level factors rather than the fault of human error (Panagos & Pearlman, 2017). The system-level event of *losing magnet status* (informed by a non-magnet nurse) as being detrimental to the health of the system correlates with findings that suggest magnet-designated facilities have better patient outcomes (Kutney-Lee et al., 2015). Furthermore, events described that are traced back to elements of ineffective communication (*bringing in new leaders who lack transparency*

informed by magnet nurses and *change that occurs without full knowledge of staff or unit needs* informed by non-magnet nurses and leaders) align with the literature that describes communication as a system-level factor that holds the potential to influence staff, ethical dilemmas, patients and care quality, and the incidence of preventable errors (Ammouri et al., 2015; Braithwaite et al., 2015; Chen et al., 2016; Chesluk et al., 2015; Kemper et al., 2013; Kirwan et al., 2013; O'Connell et al., 2018; Panagos & Pearlman, 2017; Parsons & Cornett, 2011; Pavlish, Brown-Saltzman, Fine, et al., 2015; Taylor & Taylor, 2018; Wegner & Neri Rubim Pedro, 2012). The described event of *overworked and burned out staff* informed by non-magnet leaders fits with the psychosocial processes discussed by Rasmussen et al. (2014), such as the emotional demands related to dealing with multi-tasking, difficult decisions, chronic stress, and caring for ill patients.

The *lack of appropriate processes for safety issues* system-level event contributed to by magnet nurses and leaders aligns with the insights provided in Chapter I regarding the ineffectual nature of many mitigating efforts that have been applied in response to adverse events (Finn et al., 2018; James, 2013; Kobewka et al., 2017; Zhang et al., 2017). The description of *turnover and loss of experienced nurses* echoes literature that suggests hospitals with robust organizational health have improved nurse retention rates and patient outcomes (Edwards, 2017; Han et al., 2015; Topolski, 2009; Vogus & Iacobucci, 2016). The events of *poaching employees from one subsystem to another, placing people in the wrong positions, and having inadequate supplies* provided new insights. The events involving employee poaching and having people in the wrong positions were informed by magnet leaders. The issue of having inadequate supplies

was raised by magnet nurses and was a problem brought to the surface in relation to not having enough PPE while working during the time of the COVID-19 pandemic.

## Research Question 2

The question, “*What are the strengths and weaknesses of the current method of communicating system-level events?*” was answered through information that emerged from the categories of *broken systems, communication, responsibility, shared governance, hierarchy, approach, processes, change, leadership, workforce, workload, devalued staff, peer pressure, staff wellness, patient care, and threats to patient safety.*

**Strengths.** Magnet leaders contributed the most unique information that informed the four strengths of *issues don't get lost in reporting through robust system* ( $t/(n+t) = 0.67$ ), *first-party conversations prevent message distortion* ( $t/(n+t) = 0.50$ ), *strengthened when leadership held accountable* ( $t/(n+t) = 0.50$ ), and *staff see evidence that issue was addressed* ( $t/(n+t) = 0.50$ ). These strengths emerged from the categories of *responsibility, change, and communication.* The strengths noted by the magnet leaders were outward-focused, in that were directed toward how the strengths benefited other people in their respective organizations. Magnet leaders had the highest levels of positive emotion as evidenced through LIWC analysis.

Information gleaned from magnet nurses was more inward-focused and included the communication strengths of *being neutral and not aggressive* ( $t/(n+t) = 0.50$ ) and *electronic methods of communication increase access of the recipient* ( $t/(n+t) = 0.50$ ). Both strengths emerged in the *communication* category, which was the most strongly emphasized with a Goodwin statistic of 0.86. Experiences that informed both strengths were shared from personal experiences of interacting with physicians. Magnet nurses were the mostly highly motivated by

reward according to LIWC analysis, which explains the inward focus of the responses given. Non-magnet leaders shared strengths that aligned with their drive for power, which included having a *consistent schedule to discuss safety events*.

Non-magnet nurses did not share information that contributed to any unique strengths but did share insights with magnet staff and non-magnet leaders that informed the strength of *leadership visibility, approachability, and accessibility* ( $t/(n+t) = 0.56$ ), which emerged from the *leadership* category. In addition to the importance of having visible and approachable leadership, it was stressed that accessibility is vital. If nurses are too busy to get to their leaders, the fact that they are approachable is a moot point. Magnet nurses and non-magnet leaders shared information that highlighted the *importance of multidisciplinary communication* ( $t/(n+t) = 0.25$ ) and the avoidance of siloes. This was informed by the category of *approach, patient care, and communication*.

The strengths of *issues don't get lost in reporting, transparent communication appreciated by staff and creates positive peer pressure to share openly, consistent schedule to discuss safety events and first-party conversations prevent message distortion* fit with data from the literature that denotes delineating clear expectations, supportive relationships, and organizational processes with open communication channels help to bolster communication efficacy and patient safety (Kirwan et al., 2013; Nicotera et al., 2014; Panagos & Pearlman, 2017). The described strengths of *strengthened when leadership held accountable, staff see the evidence that the issue was addressed, and leadership visibility, approachability, and accessibility* aligned with findings from earlier feasibility and concept analysis work (Brittain & Carrington, 2019a, 2019b). The noted strengths of *communication being neutral and not*

*aggressive and electronic messaging increases access and eases communication* provided new information. The thought of communication neutrality came from a magnet nurse who regularly works with physician residents. Through this discussion, the participant shared the value of varied perspectives and the need to share those insights with other disciplines in an effective way. The strength of electronic communication was contributed by another magnet nurse. It was shared that cutting out an additional person to relay a message improved access to physicians and made message content more clearly.

**Weaknesses.** Information that informed the answer to what participants viewed as weaknesses to current communication patterns emerged from the categories of *broken systems, communication, devalued staff, workforce, responsibility, hierarchy, approach, change, workload, and peer pressure*. Magnet Leaders contributed information regarding the weaknesses of *conflicting expectations causing delays* ( $t/(n+t) = 0.50$ ) and that *communication is challenging and takes more time in larger organizations* ( $t/(n+t) = 0.60$ ). Information that informed this weakness emerged in the categories of *change, workload, and communication*. The propensity of the magnet leaders toward positive emotion as noted by LIWC analysis likely explains the perspective that weaknesses included things that make good communication challenging.

Non-magnet leaders noted the weakness of *not being held accountable* ( $t/(n+t) = 0.67$ ). This information emerged in the strongly emphasized categories of *responsibility and communication*. These leaders were highly motivated by power, which underpins the desire to hold others to account for their behaviors. Magnet leaders and non-magnet leaders both shared information that informed *fear of others' perceptions hampers communication* ( $t/(n+t) = 0.50$ ). Information that informed this weakness emerged from the category of *peer pressure*.

Interestingly, the non-magnet leaders' information came from a negative slant of having to encourage staff to stand up against negative peer pressure, whereas magnet leaders shared the importance of creating environments in which staff do not have to fear. The magnet leaders' higher drive of risk and cognitive insight as evidenced by LIWC data may explain this variance.

Magnet nurses provided information from their own experiences with hampered communication, including *physicians falling asleep on the phone, overconfident leaders not listening and seen as weak when they ask questions, and newer nurses lack knowledge base*. Magnet nurses were shown through natural language processing to have a great deal of clout while being highly authentic, which likely spurred these insights and descriptions.

The non-magnet nurses again made their feelings and perceptions evident not only by their words but how they said them as evidenced by the LIWC analysis. This group contributed to the weakness of *feeling unheard and unvalued* ( $t/(n+t) = 0.75$ ), which was the most highly emphasized weakness discussed by participants. Information that informed this weakness stemmed from the categories of *devalued staff* and *communication*. Magnet nurses, non-magnet nurses, and non-magnet leaders all contributed to information that informed the weakness of *missing loop in chain of communication* ( $t/(n+t) = 0.50$ ). Information regarding this weakness emerged from the categories of *broken systems, workforce, and communication*. This weakness was especially interesting as the opposite of this was noted through the strengths highlighted by magnet leaders.

The weakness of *fearing others' perceptions* aligns with literature that posits communication is hindered when individuals seek to avoid conflict (Pavlish, Brown-Saltzman, Fine, et al., 2015). The weakness of *conflicting expectations causes delays* echoes literature that

notes divergent missions and values can lead to complications in effectively communicating (Nicotera et al., 2014). The description of communication being more *challenging and takes longer in larger organizations* and *missing loop in chain of communication* fit with the narrative of the untoward effects that can result from manifold interactivity and poor communication patterns (Brewer et al., 2018; Carrington, 2012a).

The weakness of *newer nurses lack knowledge base* ties back to *information theory* that stipulates that communication involves a message (Shannon, 1948; Shannon & Weaver, 1964). If nurses do not have the knowledge base to know what a message should be, communication will certainly be hampered. Furthermore, the weakness of *physicians falling asleep on the phone* also ties back to *information theory* as a sleeping message receiver will certainly increase entropy, or uncertainty regarding message content (Shannon, 1948; Shannon & Weaver, 1964).

The described weakness of *overconfident leaders not listening and seen as weak when they ask questions* was an insight shared by a magnet nurse and not something seen in the literature at the outset of this study. This seems to be a particularly poignant insight, especially considering the respectively high level of clout (i.e., confidence) demonstrated in the narrative of the *non-magnet* leaders by LIWC analysis.

The descriptions of *feeling unheard and devalued* (non-magnet nurse) and *not being held accountable* (non-magnet leader) both align with the theoretical underpinnings of this study while providing new information. Both of these descriptions fit with *symbolic interactionism* concepts of *self and society* in that the perceptions one has of themselves as well as interactions with others have a direct bearing on the meanings that are ascribed to things (Blumer, 1969;

Mead, 1967). However, hearing with specificity what some of these perceptions are provided further insights into unhealthy communication patterns that can occur in hospital systems.

### **Research Question 3**

To answer the question, “*What suggestions are provided to improve communication of system-level events?*” Answers to this question emerged in the categories of *communication, responsibility, shared governance, hierarchy, approach, processes, decision-making, leadership, workload, valued staff, devalued staff, safety events, peer pressure, patient care and threats to patient safety.*

Magnet leaders gave suggestions involving *communicate problems when they are identified* ( $t/(n+t) = 0.50$ ) – meaning to give prompt and detailed information when someone sees something of concern. Information that informed this emerged from the categories of *safety events* and *communication*. It was shared that timely and clear communication is imperative for learning why something happened in order to address it as needed. Thinking back to the emergent category of *safety events* – this makes sense. The magnet leaders see these events as an opportunity for learning.

A magnet nurse shared their difficulty dealing with physicians at night who fall asleep on the phone, informing the suggestion of *do not communicate with someone falling asleep*. This information emerged from the strongly emphasized category of *communication*. The magnet nurse chuckled as they spoke of this but made it very clear that this posed a significant threat to patient safety that is amplified if the communicating nurse is inexperienced and does not know how to direct the doctor toward orders they should make.

Magnet nurses, magnet leaders, and non-magnet leaders all shared information that informed the suggestion of *leaders cultivate empowering environments*. Based on the interviews with magnet and non-magnet nurses, it would seem that this is a continuing challenge in the non-magnet designated facilities. Magnet leaders and non-magnet nurses talked about *avoiding punitive measures* and the importance of *leaders listening and being tuned into their specific departments* ( $t/(n+t) = 0.63$ ). It was clear through the interviews that magnet leaders were speaking about their personal approach and non-magnet nurses were talking about what they hoped for in their own facilities. There was much discussion from the non-magnet nurses about being afraid to speak up and of out of touch management that was not aware of circumstances on the floor.

Magnet leaders and non-magnet leaders both contributed to the suggestion of *focusing on patient care* ( $t/(n+t) = 0.50$ ). Both of these participant groups were very rooted in a present focus as revealed by LIWC analysis, which explains the underpinning of this perspective.

The suggestion of *communicate problems as they are identified* aligns with Gerbner's communication model that describes an event as a stimulus for communication (Gerbner, 1956). The discussion regarding *involve key stakeholders; be consistent, deliberate, and clear; leaders should listen and be tuned in to their departments; and leaders cultivate environments that empower staff* echo the *complexity theory* concept of *self-organization*, which is optimized in the setting of shared objectives, frequent interactions, multidisciplinary collaboration, and open communication. This optimization serves to empower staff to adjust their behaviors and processes as needed to improve communication and patient care (Capra & Luisi, 2014; Mahajan, Islam, Schwartz, & Cannesson, 2017; Pincus & Metten, 2010; Sturmberg et al., 2013). This also

aligns with literature that suggests that leadership support and effective communication can bolster collaboration, transparency, and participatory problem-solving (Ammouri et al., 2015; Chesluk et al., 2015; Ernstmann et al., 2017; Panagos & Pearlman, 2017; Pedersen & Nielsen, 2013).

The suggestion of *use multiple modes of communication* aligns with *information theory's* concept of redundancy and probability. As a message is sent via multiple modalities, the likelihood or probability increases that the message will be accurately received (Shannon, 1948; Shannon & Weaver, 1964). The advice to *avoid punitive measures* coheres with data that suggest a prevalent blame culture in which individuals are punished for their mistakes encumbers communication (Ammouri et al., 2015; Edwards, 2017; Pavlish, Brown-Saltzman, Fine, et al., 2015; Woodward et al., 2010). As noted, the suggestion of *do not communicate with someone who is falling asleep* aligns with the concept of entropy, or reduced certainty regarding the content of a message, as described in *information theory*. By avoiding this, negentropy or increased certainty regarding a message would be bolstered (Shannon, 1948; Shannon & Weaver, 1964).

Although the suggestion provided by magnet and non-magnet leaders to *focus on the patient* seems intuitive for providing quality care, it is a suggestion that was unclear at the outset of this study. This suggestion fits with the organizational health elements of shared mission and vision (Brittain & Carrington, 2019a, 2019b; Xenidis & Theocharous, 2014). However, thinking of a shared focus on the patient as a way to optimize *communication* is a new insight.

### **Addressed Gaps in the Science**

One of the gaps in the science addressed in Chapter I involved the matter of communication. That is, communication is often spoken of as an important matter involved either in improving or degrading the health of systems and patient safety. What was not clear was what the content and methods of that communication were. Through this research, it was revealed that all participant groups spoke of the importance of communicating safety concerns and safety events. Non-magnet leaders spoke of communicating detailed information regarding changes that occur on the unit and hospital level. Non-magnet leaders and magnet and non-magnet nurses talked about communicating information as decisions are being made, rather than just informing people after the fact. One magnet nurse spoke of the importance of conveying feelings. A magnet leader spoke of the importance of leaders communicating with other leaders to talk about system issues they had experienced and what they had done to resolve them. Methods of communication that were discussed included telephone calls, text messages, email, electronic messaging services tied to the electronic health record, and face-to-face conversations.

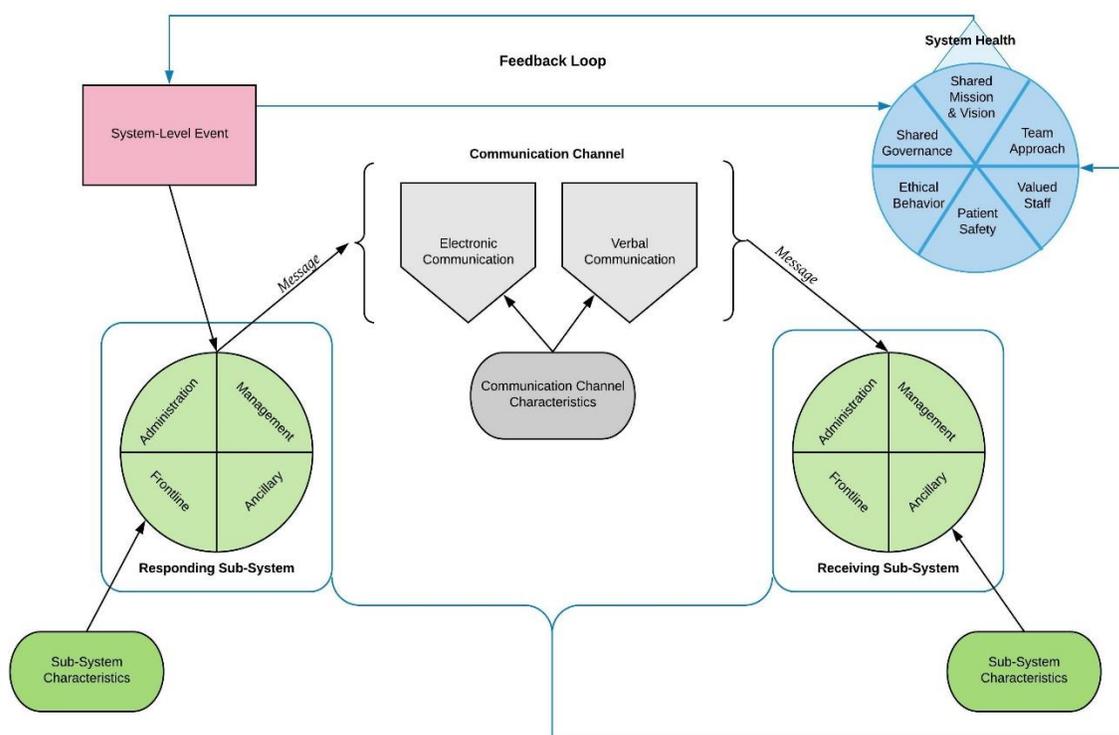
Another gap in the science that was addressed in Chapter I involved the matter of the impact that preventable errors have on the staff who are involved in them. Although none of the participants shared specific experiences regarding being involved in preventable errors, there was some sense of how they were impacted by threats to patient safety in general. This information came entirely from the group of non-magnet nurses. These nurses spoke of being generally unhappy related to compromised patient care, with one nurse sharing that they routinely go home and cry after working related to feeling like not enough was done to help the patients. Another nurse noted that trying to speak up about safety concerns and getting no response in return led to

feeling unseen, unheard, and devalued. These nurses also conveyed feeling like they are often blamed for events and errors that they were not even involved in. Remembering the LIWC variables that showed this group to be the most anxious, sad, and angry mirrors these responses.

### **Application of Research Findings to Conceptual Framework**

The primary focus in pursuing this research was to learn how system-level events were defined by the non-magnet and magnet nurses and nursing leaders, in addition to how information regarding these events is communicated. This research was theoretically underpinned by the *Effective System-to-System Communication Framework* adapted from the *Effective Nurse-to-Nurse Communication Framework* as delineated in Chapter II (Carrington, 2012). This framework served as an excellent guide and the proposed relationships aligned with what the data showed. Upon the recognition of system-level events, the person recognizing the occurrence of that event makes a choice regarding what and how to communicate. It is clear that it is not the “systems” themselves that do the communicating, but rather the aggregate of individuals within those systems. The concept of sub-system characteristics also had an evident bearing on how issues were both perceived and communicated, with the starkest contrast being between magnet and non-magnet organizations. Magnet organizations seemed to cultivate a culture or environment that cultivated open and safe communication. Clear communication then had a bearing on the outcome variable of *system health*, which recursively influenced the further mitigation or occurrence of subsequent *system-level events*. In settings where individuals feel they cannot communicate freely for fear of punishment, communication is hampered, system health is degraded, and there is a break in the feedback loop so that areas of concern cannot be adequately addressed. New data that emerged from this study were additional facets of *system*

*health*. These include *ethical behavior*, and *valued staff*. Healthy systems are evident of factors such as compassion, respect, empathy, and honesty. Furthermore, healthy systems value their staff and tend to their needs just as they tend to their patients. See Figure 18 for a representation of an updated conceptual model.



**FIGURE 18.** Revised effective system-to-system communication framework. (Note: Adapted from the Effective Nurse-to Nurse-Communication Framework [Carrington, 2012a])

### Limitations of the Study

Despite great effort and effective planning, study limitations are bound to emerge. The primary difficulty and resulting limitations faced during this study were a result of the COVID-19 pandemic. The pandemic seemed to considerably hamper participant recruitment efforts, which spanned nearly two months over three social media platforms. Posts were made on

LinkedIn publicly and to 15 nursing specific groups on numerous occasions. Posts to Facebook were also made publicly and to 56 nursing-specific groups on multiple occasions. Posts to Twitter (Tweets) were made on 35 occasions using 27 different hashtags while tagging a total of 81 different nursing associations and healthcare organizations. The length of time involved in participant recruitment was filled with other challenges that go with the territory of social media, including being the recipient of bullying and predatory behavior.

### **Strengths of the Study**

The pandemic that is noted as a limiting factor in this study also served as a strength. Being in a situation that necessitated all data collection be done remotely opened a multitude of sampling opportunities. Rather than sampling from a limited number of local organizations, participants were recruited from varied organizations across the country. Emergent themes revealed through within-methods data triangulation across both magnet and non-magnet designated organizations suggest that the research and interview questions served to reveal factors of hospital system health that warrant further study. COVID-19 was additionally helpful in bringing system-level issues to the surface in a way that participants were ready and willing to discuss. As one participant so poignantly said “*We never know that we need to fix it unless we know it's broken.*” *How do we know it's broken? Someone has to communicate the changes that need to take place. Someone needs to communicate what's working, what's not working.*” (ABD9).

Another strength of this study was the level of *information power* that was achieved. This was buttressed through employment of a theory-guided approach using a theoretical adaptation of the *Effective Nurse-to-Nurse Communication Framework* and *complexity theory*. *Information*

*power* was further bolstered through application of the within methods data triangulation analysis. Use of triangulation gave varied perspectives of the same phenomena but revealing not only the “what” participants said, but “how” they said those things. Furthermore, within-methods triangulation for data analysis increased the truth value and credibility of study results (Lincoln & Guba, 1985; Trochim et al., 2016). Quality and cognitive specificity of participant dialogue was further confirmed through analysis of the LIWC variables, which revealed high levels of expertise and insight. Lastly, application of the Goodwin statistic revealed areas of emphasis across participants.

### **Future Research**

This research has provided insights into the varying perceptions of nursing staff and leaders from magnet and non-magnet organizations regarding hospital system health, communication, and patient safety. The contrasting differences seen between nursing staff and leaders in magnet organizations across the county is quite striking. Specifically, magnet staff nurses showed lower than average positive emotion and were quite tentative, while magnet nursing leaders had above average positivity and showed the highest levels of certainty. Additionally, magnet nursing leaders were driven by the motivator of risk while magnet staff nurses were most highly driven by reward. Along this line, another question that arose through data analysis was the seeming tendency of magnet leaders to be outward focused. That is, rather than seeing how things could benefit themselves – they were focused on how things could benefit patients, staff, and the system. Future research regarding the underlying differences between types of leadership (servant leadership, transformational leadership, etc.) and the impact that has on system characteristics may lend further insight into communication pathways.

Another interesting discovery was the relatively weak emphasis on *healthy systems* ( $t/(n+t) = 0.53$ ) versus *broken systems* ( $t/(n+t) = 0.74$ ) and *communication* ( $t/(n+t) = 0.86$ ). Research regarding where the focus of an organization lies and how that feeds into outcomes may lend further insights into disparities discovered between magnet and non-magnet facilities. An additional question raised involved the description by magnet nurses of missing loops in chains of communication, whereas magnet leaders spoke of issues not getting lost in reporting and staff being able to see evidence of things as they are addressed. Further study of this involving magnet nurses and leaders from the same facilities may serve to shed further light on this disparity.

Another issue that emerged through the data was the dynamic between nurses and physicians. Interviews were rife with mention of disgruntled, condescending, and rude physicians. Nurses commonly noted breakdowns in communication and with a resulting compromise in patient care. A non-magnet nurse shared that she had seen patients deteriorate after a breakdown in communication when nurses were scared to call physicians. A non-magnet leader noted that in the midst of the current COVID-19 pandemic, physicians were unwilling to go in the rooms of COVID positive patients yet expected the nurses to do so. This has led to a great deal of angst and compromised patient care. In future work, I would like to use the same theoretical underpinnings to describe the dynamics of communication between physicians and nurses and how this influences hospital system health and patient safety.

The plight of those working in non-magnet organizations was painfully clear both in the themes that emerged from their words and their psychological and emotional states as revealed through natural language processing. A question could be posed as to whether particular types of

individuals are drawn to magnet versus non-magnet facilities, or if the people within those organizations become products of their environment. To study this, it would be useful to study individuals who have experienced the loss or attainment of magnet status in their respective organizations.

Finally, the conceptual model that guided this work largely involved subsystems within larger healthcare systems. One key component of those subsystems are middle managers who are placed in the position of meeting the needs of staff and patients, while meeting the expectations of upper management. It would be valuable to look at this group with greater specificity to learn their perspectives, needs, and fit in relationship to the subsequent influence these factors have on the health of hospital systems.

### **Summary**

The purpose of this research was to increase understanding of the perceptions of nurses and nursing leaders from magnet-designated and non-magnet-designated hospital organizations regarding what system-level events or circumstances may degrade hospital system health and compromise patient safety. Magnet and non-magnet nurses and nursing leaders participated in interviews using semi-structured questions that were rooted in literature and underpinned by theory to increase understanding regarding system-level factors that impact hospital system health. Qualitative inductive thematic analysis revealed the “what” of what was said through the emergent categories of *healthy systems, broken systems, culture, ethics, communication, responsibility, shared governance, hierarchy, approach, processes, decision-making, change, leadership, workforce, workload, valued staff, devalued staff, safety events, peer pressure, staff wellness, patient care, and threats to patient safety*.

Natural language processing through use of LIWC gave insight into “how” things were said by the participants. Of the participant groups, the magnet leaders were the most analytical, driven by risk, and had the highest levels of positive emotion and the lowest levels of anger. Magnet nurses had the highest levels of authenticity, were driven by reward, and had the lowest levels of anxiety. Non-magnet leaders were most driven by power, had the highest level of clout (i.e., confidence), the lowest level of authenticity, and were the most focused in the present. Non-magnet nurses had the lowest level of clout, were the least focused on the present and future and the most focused on the past, had the lowest positive emotion, and the highest levels of anxiety, anger, and sadness. Using within-methods triangulation provided information regarding some of the system-level differences between magnet and non-magnet organizations as well as a sampling of the emotional and cognitive processes of individuals from such organizations, while bolstering credibility and truth value. These findings will be used foundationally for future work regarding system health, communication, and patient safety.

APPENDIX A:  
SOCIAL MEDIA RECRUITMENT TRANSCRIPT

Hi. Are you a registered nurse who works directly with medical-surgical patients or a nursing leader (such as a full-time charge nurse, unit manager, director, or chief nursing officer) who works closely with medical-surgical units? Have you been in your current position for at least three months? I am conducting a study to increase understanding regarding nurse perceptions about factors that can help or hinder the health of hospital systems and in turn how these matters impact patient safety. This will involve one-time 30-60-minute interviews done online via Zoom for Health and all responses will be kept confidential. Participation in this study is voluntary, however, each participant will be given a \$10-dollar electronic coffee gift card as a token of appreciation. If you are interested in participating in this study, please send me a direct message for more information.

APPENDIX B:  
INFORMED CONSENT



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University of Arizona

### Consent to Participate in Research

**Study Title: Effective Communication of System-Level Events for System Health**

**Principal Investigator: Angela C. Brittain, MSN, RN, PhD Candidate**

**You are being asked to participate in a research study.** Your participation in this research study is voluntary and you do not have to participate. This document contains important information about this study and what to expect if you decide to participate. Please consider the information carefully. Feel free to ask questions before making your decision whether or not to participate.

The proposed study will describe nurse and nursing leaders' perceptions regarding what events or circumstances at the system-level hold the potential to degrade the health of hospital systems and compromise patient safety in addition to the ways that those factors are communicated. This will involve interviews with semi-structured interview questions that will take 30-60 minutes to complete.

There is no direct individual benefit for your participation. There are no expected physical risks to you as a result of participating in this study. You may be uncomfortable having the interview digitally audio recorded. You may also feel that your employment status is at risk by participating in this study. If you experience any emotional or mental discomfort at any time during the interview process, you may withdraw from the study at any time without penalty. Participants will receive a \$10 electronic coffee gift card as a token of appreciation.

Your participation will be kept confidential. Data will be de-identified using alpha-numeric coding prior to analysis. Your name will not be used in any report. All data will be stored on an encrypted and password protected computer.

Your responses will be assigned an alphanumeric code. The list connecting your name to this code will be kept in an encrypted and password protected file. Only the research team will have access to the file. When the study is completed and the data have been analyzed, the list will be destroyed.

With your permission, I would like to digitally audio record this interview so that I can make an accurate transcript. Once I have made the transcript and verified for accuracy, I will erase the recordings. Your name will not be in the transcript or my notes.

Because of the nature of the data, it may be possible to deduce your identity; however, there will be no attempt to do so and your data will be reported in a way that will not identify you.

Information collected about you may be used or shared for future research studies, however this data will remain de-identified as previously described.



Consent Version: 05/08/2020  
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The information that you provide in the study will be handled confidentially. However, there may be circumstances where this information must be released or shared as required by law. The University of Arizona Institutional Review Board may review the research records for monitoring purposes.

Results from this study will be used in presentations, publications, and secondary data analysis.

For questions, concerns, or complaints about the study you may contact Angela Brittain at 360-513-7869.

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact the Human Subjects Protection Program at 520-626-6721 or online at <http://rgw.arizona.edu/compliance/human-subjects-protection-program>.

#### **Giving consent**

I have reviewed this form, or someone has read it to me and I am aware that I am being asked to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to participate in this study.

APPENDIX C:  
THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD APPROVAL  
LETTER



Human Subjects  
Protection Program

1618 E. Helen St.  
P.O.Box 245137  
Tucson, AZ 85724-5137  
Tel: (520) 626-6721  
<http://rgw.arizona.edu/compliance/home>

**Date:** May 14, 2020  
**Principal Investigator:** Angela Christine Brittain  
**Protocol Number:** 2005645354  
**Protocol Title:** Effective Communication of System-Level Events for System Health  


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**Determination:** Approved  
**Expiration Date:** May 13, 2025

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**Documents Reviewed Concurrently:**

**Data Collection Tools:** *Brittain.A\_InterviewQuestions.docx*  
**HSPP Forms/Correspondence:** *Brittain.A\_appendix\_waiver\_v2019-08.pdf*  
**HSPP Forms/Correspondence:** *Brittain.A\_application\_v2019-12...pdf*  
**HSPP Forms/Correspondence:** *Brittain.A\_list\_of\_research\_personnel\_v04-2020.pdf*  
**Informed Consent/PHI Forms:** *Brittain.A\_InformedConsent-1.doc*  
**Informed Consent/PHI Forms:** *Brittain.A\_InformedConsent-1.pdf*  
**Other Approvals and Authorizations:** *COI Certification Complete for 2005645354.msg*  
**Recruitment Material:** *Brittain.A\_SocialMediaRecruitmentScript.docx*

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**Regulatory Determinations/Comments:**

- The project is not federally funded or supported and has been deemed to be no more than minimal risk.
- The project listed is required to update the HSPP on the status of the research in 5 years. A reminder notice will be sent 60 days prior to the expiration noted to submit a 'Project Update' form.

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This project has been reviewed and approved by an IRB Chair or designee.

- The University of Arizona maintains a Federalwide Assurance with the Office for Human Research Protections (FWA #00004218).
- All research procedures should be conducted according to the approved protocol and the policies and guidance of the IRB.
- The Principal Investigator should notify the IRB immediately of any proposed changes that affect the protocol and report any unanticipated problems involving risks to participants or others. Please refer to Guidance Investigators Responsibility after IRB Approval, Reporting Local Information and Minimal Risk or Exempt Research.
- All documents referenced in this submission have been reviewed and approved. Documents are filed with the HSPP Office.

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