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Doctoral Project

Enhancing Nurse-Physician Communication and Collaboration

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Introduction

In healthcare organizations today, creating a culture of safety is critically important. Communication failures among healthcare providers have been linked to 70% of annual sentinel events. Seventy-six percent of individuals experiencing a sentinel event die (Joint Commission, 2009). Lack of good communication behavior between nurses and physicians has been recognized as a cause of preventable harm to patients (Institute of Medicine, 2004; Zwarenstein & Reeves, 2006). In hospital settings, communication failures are linked to increases in length of stay, patient harm, resource utilization, more rapid turnover, and caregiver dissatisfaction (Dingley et al., 2008). Numerous national organizations and commissions have officially mandated interdisciplinary collaboration as strategies for improved healthcare (Marshall, 2011). Yet organizations currently allow a practice environment where nurse-physician communication is ineffective as evidenced in root cause analyses and fact finding (Gurses & Xiao, 2006).

In programs where nurse-physician communication improvement has been demonstrated, better patient outcomes have resulted. Nurse-physician collaboration has been a key factor in patient satisfaction, nurse satisfaction, nurse retention, physician satisfaction, fewer medical errors, and improved patient outcomes (McCafferey et al., 2011; Maxon et al., 2011; and Crawford, Omery, & Seago, 2012). Understanding which approaches are most effective and the implementation factors that may influence effectiveness are critical to achieving meaningful improvement (Singer & Vogus, 2012).

The need exists for healthcare leaders to address the critical issue of ineffective communication and collaboration among nurses and physicians. Leaders must be accountable to educate nurses and physicians on the importance of collaborative practices and create structures and processes to support nurse-physician communication and collaboration. Additionally,

healthcare organizations have accountability to patients and families in providing environments in which physicians and nurses work collaboratively regarding the plan of care.

Purpose Statement

The purpose of this project was to implement an evidence-based education program to improve communication and collaboration between nurses and physicians in an acute care hospital.

Literature Review Criteria and Process

A search of databases in MEDLINE, Cumulative Index to Nursing and Allied Health (CINAHL), ProQuest Nursing and Allied Health and PubMed was conducted for the years 2000 to 2015 using the key words: nurse physician communication, nurse physician collaboration, communication, collaboration, multidisciplinary communication, interprofessional communication, interprofessional collaboration, healthcare team communication teamwork and healthcare team collaboration. Research and peer reviewed articles were used for the selection criteria. Additionally, articles were selected that included primary studies of nurse-physician communication and collaboration, the English language, studies including nurse-physician communication programs in a variety of clinical areas, and studies conducted in both the United States and abroad. Titles and abstracts were evaluated. Article and content were examined when abstracts were not available.

The research studies were assessed for adequate description of methodology, sample size reliability and validity. Both qualitative and quantitative studies were found. The studies addressed the spectrum of healthcare populations from pediatric to adult populations. The healthcare settings included medical surgical, critical care, emergency department, labor and

delivery, post-partum, oncology, post-anesthesia unit, non-academic and academic settings. Additionally, the sources included the United States and other countries.

<div align="center">**Literature Review**</div>

Communication

Communication is a social process in which individuals employ symbols to establish and interpret meaning in their environment (West & Turner, 2014). The context is one of a dynamic, ongoing process of creating and negotiating meanings through interactional symbolic (verbal and nonverbal) practices, including conversations, metaphors, rituals, stories, dress, and space (Mumby, 2013). Mehrabian (1972), in experiments of communication of feelings and attitudes in ambiguous situations, found that one's liking of an individual depends on only 7% of the spoken words, whereas 38% depends on tone of voice and 55% on facial expressions. Congruence among these components is essential for meaningful communication about emotions. Based on Mehrabian's research, it is difficult if not impossible to think of any message sent by one person to another that does not, in some way, also carry a commentary on the relationship between the two parties (Knapp, Vangelisti, & Caughlin, 2013).

Effective communication among professionals in any workplace environment may be difficult to achieve. Professional workplace communication challenges in the business industry may be categorized as behavior or process opportunities. Ineffective communication regarding process includes lack of clarity in messages, misunderstanding of the most important component of the message, and lack of active listening. Unprofessional attitudes and communication that lacks respect and courtesy are examples of behavior demonstrated by individuals (Friedman, 2011; Hofstrand, 2014). Ineffective communication exists among many professions. The

opportunity exists for organizational leaders to evaluate potential strategies for improving

communication in the workplace.

Nurse-Physician Communication and Collaboration

Communication is one form of collaborative behavior. Collaborative relationships occur

when two or more people work together in order to accomplish common goals (Chan 2013).

Collaboration and communication between nurses and physicians are essential in facilitating

improved patient care outcomes, nurse and physician satisfaction, and patient satisfaction. The

patient recovery process may be impaired when collaborative behaviors are not optimally

practiced by the healthcare team in the acute care setting (Arford, 2005).

The critical importance of nurse-physician communication is evidenced by the fact that

one of the 2006 national patient safety goals of the Joint Commission on Accreditation of

Healthcare Organizations (2009) is related to improving the effectiveness of communication

among providers. Poor communication among the inter-professional healthcare team represents

a major etiology of preventable adverse events in hospitals. The Joint Commission (2010) found

that communication issues were among the top reasons for death related to a delay in treatment,

and identified communication issues as the third highest root cause of sentinel events.

Communication between nurses and physicians is a major part of information flow in

healthcare. Optimal patient flow in the acute care environment requires interprofessional

coordination, communication, and collaboration to provide safe and effective patient outcomes

(Riggall & Smith, 2015). Kupperschmidt and colleagues (2010) reviewed components and

outcomes of healthy work environments (HWE) among interprofessional healthcare teams.

Components comprising HWEs included respectful and trusting relationships, clear and candid

communication, collaboration, and interprofessional team member awareness of communication

strengths and opportunities for improvement. When these components exist among the

interprofessional team, less medical errors occur, patient satisfaction improves, communication

among team members improves, and team member satisfaction improves (Kupperschmidt,

Kientz, Ward, & Reinholz, 2010).

 Clinical nurses, nursing leadership, and healthcare executives remain challenged with

providing effective, efficient, safe, timely, and patient-centered care in an environment of

increasing clinical and regulatory complexity (Blough & Walrath, 2006). Institutional gaps

related to miscommunication of patient information among healthcare providers include

challenges related to process, behavior, and environment. Issues related to miscommunication

include insufficient communication handoffs, missed transfer of critical patient information,

patients interacting with multiple caregivers, numerous means of communication methods, and

lack of standardization in communication practices. Longstanding hierarchical communication

practices related to role status and gender may result in disruptive behaviors during nurse-

physician communication (Seago, 2008).

The chaotic nature of operations and patient flow creates barriers to effective

communication. The environment of acute care inpatient units is traditionally fast-paced

regarding the activity. Daily actions include multiple patient transfers, admissions, discharges,

managing unit staffing needs, responding to patient resuscitation emergencies, and coordinating

patient and family psychosocial care needs (Riggall & Smith, 2015). Healthcare leadership is

needed to address the gaps and provide a safer environment for staff and patients.

Implications for Nurses

Nurses are trained to be descriptive and narrative in their communication and messaging,

frequently using a broad brush approach to paint verbal images. Nurses are taught interpersonal

communication skills as a core competency. Included in the competency is the expectation that communication is conducted in a clear and concise manner. This applies to written, electronic, and oral communication (Boykins, 2014).

During the summer of 2014, interviews were conducted with nurses at Norton Audubon Hospital (NAH). Nurses were interviewed during staff meetings, nursing and patient care coordinating council meetings, nursing governance councils, individual meetings, and during unit rounds. Common themes emerged regarding communication with physicians including experiencing intimidating and disruptive physician behaviors, demeaning and condescending remarks and attitudes toward nurses, verbal outbursts, and delayed responses in physicians returning nurse phone calls about patient care needs. The Joint Commission considers intimidating and disruptive physician behavior to be a very serious issue. As a result, the Joint Commission issued a Sentinel Event Alert in 2009 requiring organizations to exercise an 11-step series of actions to resolve this issue. Strategies include establishing expectations and accountability for professional and courteous behavior, creating a reporting system when intimidating and disruptive behaviors are demonstrated, and providing a mechanism for team training (The Joint Commission, 2010).

It is important to create an organizational culture where mutual respect among nurses and physicians is demonstrated. Improving nurse-physician communication includes creating a work environment that focuses on open nurse-physician communication (Nadzam, 2009). Healthcare leaders must encourage staff to recognize the contributions and value that each member of the healthcare team demonstrates in the delivery of patient care (Kupperschmidt, Kientz, Ward, & Reinholz, 2010).

Implications for Physicians

Vazirani (2005) and colleagues found that physicians may perceive nurse-physician collaboration as the degree of nurse cooperation demonstrated in following physician orders versus decision making based on mutual participation. In addition, Tija et al. (2009) identified nurse competency and preparedness as key components for physician views of effective nurse-physician communication. Both components were perceived as communication barriers by physicians.

The interviews conducted during the summer of 2014 included hospitalist physicians and department medical directors, discussions at medical staff meetings and medical staff quality meetings. The most common concerns and themes voiced by physicians were related to process. Concerns included lack of nurse-preparedness, organization of patient information during communication, nurse cooperation regarding timeliness in completion of physician orders, and trust in the competency and skills of the nurse. Only one physician discussed a behavioral concern related to nurses demonstrating unpleasant attitudes in working with physicians.

Physicians are trained differently than nurses in the academic setting. Physician communication in the academic setting focuses on the patient's condition and treatment plans (Boykins, 2014). Physicians are action-oriented and expect a focused problem approach in communication while expecting immediate action (Nadzam, 2009). While interviewing physicians at Norton Audubon Hospital (NAH), many commented on the desire to obtain a collaborative relationship with nurses and improve nurse-physician communication, as it provides for a more satisfying work environment and could potentially improve the flow of patient information.

Implications for Patients and Families

Patients and families desire to be a part of decision-making with healthcare providers. When patients and family members are not included, they do not feel involved and are left with many unanswered questions regarding their care plan. When a singular shared message regarding the patient plan and goals of care is communicated to the patient and family with clarity and uniformity, confusion among the entire healthcare team, patient, and family is minimized. A consistent message regarding the plan of care by the nurse and physician provides a jointly derived patient care plan where nursing input is sought and received. Patient questions are addressed by the care team, and the anticipated schedule of the day is delineated. Participation of the patient and family is sought and encouraged. This alleviates fears for the patient and family, and provides a sense of involvement. A sense of security is maintained related to the nurse and physician reassuring the patient of the plan of care (Rimmerman, 2013).

Principles and Guidelines

In the aviation industry, team performance frameworks have been used to develop team competencies for flight crews. Similarly, in healthcare it is necessary to create tailored team performance frameworks that reflect the demands in the provision of patient care (Manser, 2008). An evidence-based framework of health professional collaboration competencies include knowledge of roles, skills, and behaviors associated with communication and reflection, attitudes, mutual respect, openness to trust, and willingness to collaborate (D'Amour & Oandasan, 2005). This set of themes is consistent with those obtained from interviews with nurses and physicians at NAH.

Interprofessional Communication Education

It is critical to develop and educate healthcare professionals on professional practice standards in collaboration and communication. Competencies in communication based on the

principles established by professional practice associations can assist healthcare providers in becoming skilled communicators and collaborative colleagues. The skilled communication competencies of the Interprofessional Education Collaboration ([IPEC], 2011) encourage the use of open, concise, courteous, and meaningful communication practices. The standards of the American Association of Critical Care Nurses ([AACN], 2005) focus on establishing institutional expectations for staff rather than individual staff expectations. The American Nursing Association ([ANA], 2010) provides a set of competencies for individual application and self-accountability for each nurse and physician.

A current policy and practice that exists at NAH is the utilization of the practice tool titled Situation Background Assessment Recommendation (SBAR). This tool is internationally recognized and is recommended by the World Health Organization (World Health Organization, 2008). SBAR stipulates that the patient's situation and background and the professional's assessment and recommendations should form the core of the handover discussion. Outcomes following implementation of SBAR include improved patient safety, increased quality of care, reduced patient falls during shift change, decreased response time to nurses' request for patient needs, and reduced reporting time by 70% (Wacogne & Diwakar, 2010).

The Studer Group provides communication guidelines that are helpful in interprofessional communication and with patients and families. Themes include courtesy and respect, careful listening, understanding expectations, and physician's clear explanation of care (Studer, Robinson, & Cook, 2010).

Implications for Norton Audubon Hospital

Prior to the project there had been no education at NAH focusing on effective interprofessional nurse-physician communication in the nursing orientation program.

Additionally, physicians at NAH do not receive education on effective interprofessional nurse-physician communication. Issues around ineffective nurse-physician communication were discussed at various medical staff meetings, quality meetings, nursing leadership meetings, and nursing staff meetings. Both professions expressed interest in addressing this problem, and voiced much enthusiasm in the proposed project. Nurse and physician interest appeared to be inspired by a shared desire to improve patient outcomes and overall nurse and physician satisfaction.

Financial Implications

Each year 210,000 to 440,000 Americans die from preventable harm in hospitals, with the cost of deaths and injuries totaling nearly one trillion dollars per year in the United States. Preventable patient harm has become the third leading cause of death in the U.S. (James, 2013). Since communication failures among healthcare providers have been linked to 70% of annual sentinel events (The Joint Commission, 2010), the current project had the potential to achieve substantial cost savings, through decreasing medical errors and preventable harm. Also, findings from multiple studies estimate nurse turnover costs at approximately $64,000 to replace a single nurse in an organization (Jones, 2008). Therefore it is of significant financial interest and benefit to engage in measures which provide high levels of nurse satisfaction and retention.

The U.S. Federal Government mandated Value Based Purchasing (VBP) in 2010 as a payment methodology that rewards quality of care through payment incentives and transparency. In healthcare, value can be broadly considered to be a function of quality, efficiency, safety and cost. Hospitals are scored for each measure according to a 10-point scale defined between the measure's achievement threshold and a benchmark (Klein & Shoemaker, 2012). Collaborative

practice and effective communication among nurses and physicians can assist with meeting VBP organizational goals.

Theoretical Framework

The theoretical framework used to guide this project was Role Theory developed by Conway and Hardy (1988). Role Theory addresses society, values, culture, and ethical standards of healthcare professionals related to their behavior and self-concept. Socialization aims at the development of a professional identity among the healthcare roles and professions. Key concepts of the theory are role strain, role stress, status, role attitudes, reference groups, stratification, and role negotiation (Conway & Hardy, 1988). Role theory has significant application to the present study due to the hierarchical and status delineations and barriers that often exist between physicians and nurses. When collaborative nurse-physician communication occurs regarding the patient's plan of care, the patient and healthcare team benefit through improved patient outcomes (Blough & Walrath, 2006). Historically the physician-nurse relationship was one involving the nurse acting in a subservient fashion to the physician. Today there is much more equality in the relationship among the two disciplines (Johnson & King, 2012).

Methods and Procedures

Design

The study was an eight-week pre/post-intervention design.

Setting

The study took place at Norton Audubon Hospital (NAH). It is one of five acute care hospitals within Norton Healthcare located in Louisville, Kentucky. Norton Healthcare is a non-profit healthcare organization providing services to adults and children. The hospital is accredited by The Joint Commission as a Chest Pain Center of Excellence and a Stroke Center of

Excellence. There are approximately 1,300 employees and over 300 physicians at NAH. Approximately 650 registered nurses and 10 employed hospitalist physicians practice at NAH. The hospital maintains state licensure for 442 beds. Hospital services include Emergency, Surgical, Cardiovascular, Pulmonary, Orthopedic and Spine, and Oncology Services. The two units selected for this study included 82 acute care beds for medical-surgical and telemetry-monitored patients. All medical-surgical/telemetry unit registered nurses work twelve-hour shifts. Each registered nurse may have a patient assignment consisting of approximately 5 patients. Hospitalist physicians are the main providers of care to these patients.

Sample

The participants were recruited from 73 staff nurses employed on the selected units, and 10 hospitalist physicians employed by Norton Healthcare who provide care to patients at NAH, including these units. Sample characteristics were assessed using the form in Appendix A and are displayed in Table 1. A total of 66 nurses and 5 hospitalist physicians completed the pre-surveys in October 2015, and 61 nurses and 5 hospitalist physicians completed the post-surveys in November in 2015 for a 93% response rate for both surveys. Two nurses left the unit during the course of the project, and three nurses did not complete the post Nurse Physician Collaboration Scale (NPS) (Ushiro, 2009) and post Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration (JSAPNC) (Hojat et al., 1999).

Participants ranged in age between 22 and 68 years with a mean age of 41. The majority of participants had been in their current profession for 10 years, and on their current unit for 3 years. Most were female (84%) and Caucasian (7%). There were slightly more nurses with Associate degrees (45%) than Baccalaureate degrees (39%). Thirty percent of the participants

held a certification. Half of the participants had received formalized communication training in a

university setting.

Table 1

Sample Characteristics (N = 66)

Characteristic	*M* / *SD* or %
Age (Mean/SD)	*M* = 41, *SD* = 12.4
Gender Count (%)	
Female	56 (85%)
Male	10 (15%)
Ethnicity (%)	
Caucasian	50 (76%)
African-American	5 (7%)
Hispanic	3 (5%)
Other	6 (9%)
No Response	2 (3%)
Profession (5)	
RN	61 (92%)
MD	5 (8%)
Years in Healthcare (Mean/SD)	*M* = 13, SD = 11
Years at NAH in Years (Mean/SD)	*M* = 5, SD = 7
Years on Current Unit (Mean/SD)	*M* = 3, SD = 4
Years in Profession (Mean/SD)	*M* = 10, SD = 10.5
Education (%)	
ADN	30 (45%)
BSN	26 (39%
MSN	2 (3%)
MD	5 (8%)
Other	3 (5%)

Characteristic	*M* / *SD* or %
Certification obtained (%)	
Yes	21 (32%)
No	45 (68%)
Communication Class in Past (%)	
Yes	33 (50%)
No	33 (50%)
University Communication Class (%)	
Yes	32 (48%)
No	10 (15%)
No Response	24 (36%)
Shift Worked (%)	
Day	40 (61%)
Evening/Night	25 (38%)
No Response	1 (1%)

Intervention

The intervention was designed to improve nurse-physician communication and collaboration. Nurse-physician communication and collaboration principles were the basis of content for the education portion of the intervention. The first session was 2-3 hours in length, followed by weekly 30 minute journal club sessions conducted for 6 consecutive weeks. A final 1 hour session was held to review lessons learned from Session 1 and journal club sessions, and to discuss progress in nurse-physician communication and collaboration**.**

Session 1. Nurse-physician communication and collaboration principles were the basis of content (Table 2). These principles were derived from applicable sources and included professional skills and techniques for safe, effective collaborative practice and teamwork (IPEC,

2011; American Association of Critical Care Nurses, 2005; The American Nurses Association,

2010) and SBAR (World Health Organization, 2008). The 2-3 hour program included a didactic

portion consisting of a review of the principles of effective nurse-physician communication and

collaboration, learning activities, communication exercises, and a video including staff nurses

and hospitalist physicians demonstrating scenario examples of effective and ineffective nurse-

physician communication. Time for active participant discussion, practice, and role play was

provided. In order to accommodate nurse and physician schedules, nine education class time

offerings were made available for participants. Each participant chose one education class time

to attend. The education sessions took place between the first week of October and the second

week of November 2015. At the conclusion of the course, participants were instructed to

complete evaluation forms that were submitted to the Norton Healthcare sponsor for the

American Nurses Credentialing Center. Two Continuing Education Credits were approved by the

American Nurses Credentialing Center and given to the nurse participants upon completion of

the course.

Table 2

Principles of Effective Nurse-Physician Communication and Collaboration

Effective communication techniques
Organization of information to be relayed
Communicate with confidence, clarity and mutual respect
Active listening
Giving feedback constructively
Respectful language
Recognition of individual's uniqueness/contributions
Importance and impact of teamwork
Continuous improvement of one's communication skills
Contributes own professional perspective in discussions with the interprofessional team

Journal Club meetings. Following Session 1, journal club meetings were conducted once a week on each shift including a day shift and night shift session on the weekend. Identified nurse champions facilitated the journal club sessions. Each week a different article related to nurse-physician communication and collaboration was introduced for discussion. Lessons learned in the previous week regarding nurse-physician communication and collaboration were also discussed. In addition, foundational principles and guidelines from Session 1and journal club were reviewed at the beginning of each shift, a discussion period commonly known to staff as shift starters.

Session 2. Once the project was completed, sixteen post sessions were scheduled with participants to gather feedback regarding progress in nurse-physician communication, lessons learned from Session 1 and journal club sessions.

Instruments

Nurse-Physician Collaboration Scale. The instrument used to measure collaboration was the Nurse-Physician Collaboration Scale (NPS) developed by Ushiro (2009). The NPS (Appendix B) is a 27 item tool using a 5 point Likert scale (1 = always; 2 = usually; 3 = sometimes; 4 = rarely; and 5 never). A lower value represents a more frequent use of behaviors related to collaboration. The NPS survey assesses specific nurse-physician behaviors associated with their relationships regarding patient care situations. In psychometric testing of the instrument, three factors related to collaboration emerged: 'sharing of patient information'; 'joint participation in the cure/care decision-making process'; and 'cooperativeness'. The NPS results for internal reliability testing were satisfactory as measured by Cronbach's Alpha coefficients of 0.80 or above, with test-retest coefficients 0.7 or above (Table 3).

Table 3

Nurse Physician Collaboration Scale ($N = 66$)

	Nurses			Physicians		
	n	Mean $\pm$ SD	Factor loading	n	Mean $\pm$ SD	Factor loading
Factors and items						
Joint participation in the cure/care decision-making process		n= 0.923			n= 0.926	
(J12) The nurses and the physicians exchange opinions to resolve resolve problems related to patient cure/care	1207	3.17 ± 1.0	0.881	436	3.52 ± 0.91	0.811
(J11) In the event of a disagreement about the future direction of a patient's care, the nurse, and the physicians hold discussion to resolve differences of opinion	1209	3.07 ± 1.08	0.864	435	3.60 ± 0.98	0.811
(J16) The nurses and physicians discuss whether to continue a certain treatment when that treatment does not have the expected effect	1208	3.01 ± 1.12	0.764	440	3.02 ± 1.10	0.737
(J10) When a patient is to be discharged from the hospital, the nurses and the physician will discuss where the patient will continue to be treated and the lifestyle regime the patient needs to follow	1202	3.31 ± 0.98	0.737	437	3.43 ± 0.97	0.696
(J13) When confronted by a difficult patient, and the physicians discuss how to handle the situation	1210	3.4 ± 1.05	0.713	438	3.86 ± 0.90	0.7
(J8) The nurse and physicians discuss the problems a patient has	1209	2.91 ± 1.0	0.705	438	3.31 ± 0.95	0.75
(J6) The nurses and the physicians together consider their proposals about the future direction of the patient	1211	3.17 ± 1.05	0.673	439	3.37 ± 1.00	0.571
(J15) In the event the patient develops unexpected side effects or complications the nurses and the physicians discuss countermeasures	1209	3.67 ± 0.94	0.58	440	3.83 ± 0.98	0.676

(continued)

	Nurses			Physicians		
	n	Mean $\pm$ SD	Factor loading	n	Mean $\pm$ SD	Factor loading
(J14) In the event the patient no longer trusts a staff member, the nurses, and the physicians try to respond to the patient in a consistent manner to resolve the situation	1212	3.81 $\pm$ 0.93	0.498	438	3.96 $\pm$ 0.88	0.665
(C2) The future direction of a patient's care is based on a mutual exchange of opinions between the nurses and the physicians	1204	3.18 $\pm$ 0.93	0.498	437	3.52 $\pm$ 0.85	0.632
(J3) The nurses and the physicians seek agreement on signs that a patient can be discharged	1204	3.59 $\pm$ 0.96	0.473	439	3.74 $\pm$ 0.91	0.431
(J18) The nurses and the physicians discuss how to prevent medical care accidents	1212	2.71 $\pm$ 0.99	0.463	440	3.48 $\pm$ 1.08	0.462
Sharing of patient information		n = 0.905			n = 0.911	
(S4) The nurses and the physicians all know what has been explained to a patient about his/her condition or treatment	1210	3.54 $\pm$ 0.92	0.794	440	3.58 $\pm$ 0.99	0.679
(S9) The nurses and the physicians share information to verify the effects of treatment	1212	3.50 $\pm$ 0.88	0.778	439	3.65 $\pm$ 0.88	0.801
(S7) The nurses and the physicians have the same understanding of the future direction of the patient's care	1214	3.39 $\pm$ 0.96	0.702	439	3.65 $\pm$ 0.90	0.845
(S2) The nurses and the physicians identify the key person in a patient's life	1215	3.58 $\pm$ 0.99	0.695	439	3.86 $\pm$ 0.97	0.707
(S8) In the event of a change in treatment plan, the nurses and the physicians have a mutual understanding of the reasons for the change	1217	3.62 $\pm$ 0.89	0.688	438	3.85 $\pm$ 0.85	0.793
(S10) The nurses and physicians check with each other concerning whether a patient has any signs of side effects or complications	1213	3.63 $\pm$ 0.94	0.676	440	3.75 $\pm$ 0.93	0.563

(continued)

	Nurses			Physicians		
	n	Mean ± SD	Factor loading	n	Mean ± SD	Factor loading
(S6) The nurses and physicians share information about a patients reaction to explanations of his/her disease status and treatment methods	1206	3.10 ± 0.98	0.656	437	3.25 ± 0.99	0.678
(S1) The nurses, the physicians, and the patient have the same understanding of the patient's wish for cure and care	1212	3.46 ± 0.84	0.634	439	3.79 ± 0.82	0.55
(S11) The nurses and the physicians share information about a patient's level of independence in regard to activities of daily living	1212	3.37 ± 0.93	0.583	440	3.59 ± 0.92	0.605
Cooperativeness		n= 0.800			n= 0.842	
(C12) The nurses and the physicians can easily talk about topics other than topics related to work	1203	2.84 ± 1.20	0.77	438	3.69 ± 1.09	0.879
(C11) The nurses and the physicians can freely exchange information or opinions about matters related to work	1202	3.15 ± 1.05	0.761	437	3.95 ± 0.91	0.796
(C7) The nurses and physicians show concern for each other when they are very tired	1202	2.81 ± 1.14	0.607	437	3.06 ± 1.08	0.551
(C19) The nurses and physicians help each other	1203	3.19 ± 0.97	0.602	436	3.79 ± 0.92	0.64
(C10) The nurses and physicians greet each other every day	1205	4.24 ± 0.87	0.499	437	4.38 ± 0.75	0.649
(C8) The nurses and physicians take into account each other's schedule when making plans to treat a patient together	1203	3.41 ± 1.16	0.433	434	3.50 ± 1.0	0.447

J, joint participation in the cure/care decision making process; S, sharing of patient information; C, cooperativeness

Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration. The Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration ([JSAPNC], Hojat et al., 1999) was used to measure staff attitudes toward nurse-physician collaboration. The JSAPNC (Appendix C) is a 15 item tool using a four point Likert scale (4 = strongly agree; 3 = tend to agree; 2 = tend to disagree; and 1 = strongly disagree) to assess physician and nurse attitudes toward physician's authority, nurse's autonomy and responsibility for patient monitoring, shared education and teamwork, and caring versus curing. A higher value represents the degree of agreement regarding attitudes on collaboration. The scoring for questions 8 and 10 is reversed. Cronbach's alpha is reported at 0.84 for medical students and 0.85 for nursing students indicating adequate reliability (Hojat et al., 1999). Confirmatory factor analysis to establish factoral validity found a 3 factor model as a better fit that a 1 structure model, resulting in Cronbach's alphas of .61, .62, and .54 for the 3 subscales and .72 for the total scale (Jones, Letvak, & McCoy, 2013). Psychometric properties supporting the construct and criterion-related validity of the JSAPNC have been reported in a variety of nurse and physician populations (Hojat et al., 2003; Hojat et al., 2001).

Data Collection

Consent forms were completed prior to Session. The researcher distributed packets containing the pre-intervention NPS, JSAPNC, and the sociodemographic form. The purpose of the study was explained and instructions were reviewed with participants. Once the instruments were collected, the education portion of Session 1 was conducted. Session 1 was repeated over a two week period to allow participants to attend. Weekly journal clubs were then initiated and continued for 6 weeks. After completion of journal club sessions, Session 2 was conducted over a 2 week period. Post-intervention NPS and JSAPNC surveys were administered during these

final sessions and collected by the researcher.

Data Analysis

SPSS version 21 was used to analyze the data. Sociodemographic data was analyzed using descriptive statistics. Paired sample t-tests were used to compare differences in pre/post-intervention scores of the NPS and JSAPNC.

NPS. Paired sample t-tests of pre- and post-intervention NPS scores are displayed in Table 4. There was a statistically significant improvement in the NPS scores from pre-intervention ($M = 80.1$, $SD = 17.6$) to post-intervention ($M = 72.1$, $SD = 20.15$), $t(65) = 3.41$, $p < .001$ (two-tailed). The mean decrease in NPS scores was 8.0 with a 95% confidence interval ranging from 3.32 to 12.68. Since lower values on this scale represent a more frequent use of the behaviors related to collaboration, the post intervention NPS scores indicate statistically more favorable responses regarding collaborative behaviors. Paired sample t-tests were also conducted on the NPS subscales (Table 4). There was a statistically significant improvement in NPS cooperativeness subscale ($p < .000$) and the joint participation in the cure/care decision-making process ($p < .002$) from pre-intervention to post-intervention.

Table 4

Paired Sample t-test of Pre/Post-NPS Scores (N=66) and Pre/Post-NPS Subscale Scores (N=66)

Instrument	Pre-Survey Mean (SD)	Post-Survey Mean (SD)	*t value*	*df*	*p*
NPS	80.1 (17.6)	72.1 (20.1)	3.41	65	**.001**
NPS Subscales:					
Sharing	24.8 (6.0)	23.3 (6.8)	1.8	65	.078
Joint Care/Cure	35.1 (8.4)	31.6 (9.8)	3.3	65	**.002**
Cooperativeness	20.1 (4.5)	17.3 (4.7)	4.6	65	**.000**

SD, Standard Deviation
Statistical significance set at $p \leq 0.05$. Significant results are in bold.

JSAPNC. There was no significant difference in the pre- and post-intervention JSAPNC

scores.

Table 5

Paired Sample t-test of Pre-/Post JSAPNC Scores (N=66)

Instrument	Pre-Survey Mean (SD)	Post-Survey (SD)	*t value*	*df*	*p*
JSAPNC	53.1 (3.84)	53.9 (3.99)	-1.66	65	.101

SD, Standard Deviation
Statistical significance set at $p \leq 0.05$.

Participant Feedback

Feedback from participants regarding the education program was gathered and journaled

during the final session. Physicians voiced their appreciation for the open and transparent

discussion around nurse-physician communication and opportunities for improvement. Nurses

conveyed understanding and appreciation regarding the opportunity to improve upon adhering to

the principles of SBAR (World Health Organization, 2008) when communicating patient information to physicians. Numerous participants provided positive comments on the content of the education session and the review of principles of effective nurse-physician communication and collaboration. The majority of favorable comments included appreciation of the video portraying effective and ineffective communication practices by the nurse and the physician. The role-play exercise during the class received numerous positive comments. Team-building and collaboration was mentioned by several participants as a positive learning experience from class exercises and communication games.

Other key themes participants discussed included the importance of treating each other with mutual respect, active listening, speaking with clarity, use of respectful language, and having an appreciation for all team members' contributions. Both nurses and physicians commented that being able to talk about communication issues during the class, built healthy team relationships for both professions. Nurses commented that two of the physicians had demonstrated significant positive changes in their communication and collaboration with nurses. Several nurses voiced that physicians are currently asking nurses for feedback regarding the physician's communication with nursing. Physicians stated that nurses are much more organized regarding patient information when calling physicians about patients.

Finally, participants recognized the importance of effective nurse-physician communication and collaboration for patient safety and for the patient and family experience. Participants shared their appreciation and understanding of knowledge gained from the class video regarding the powerful impact nurse-physician communication has on the patient and family. The potential for patient harm from communication failures was also a common theme in lessons learned during feedback discussions. Participants voiced much gratitude for the

education sessions and journal clubs. They stated the education has allowed them to look at themselves and reflect on their own individual practices in communication and collaboration with not only nurses and physicians, but with the entire healthcare team and with patients and families.

Ethical Considerations

The NAH Medical Director, Chief Administrative Officer and System Chief Nursing Officer approved the project plan. The project was reviewed by the Bellarmine University Internal Review Board and Norton Healthcare Internal Review Board. Project participation was voluntary. Informed consent was completed by all participants prior to participation in the study. Code numbers for identification of surveys were used to protect participant anonymity. The NPS and JSAPNC surveys and code list were kept in a locked area accessible only by the researcher. The code list and any confidential information were shredded after data analysis was completed. Data was reported in aggregate form only. Final study results were shared with participants.

 Barriers

Potential barriers may have existed that could have affected or hindered the project. One potential barrier could have been the time staff nurses and physicians spent away from the patient care unit to complete the educational course. However, leadership and commitment from the department nurse manager, director of patient care services, chief nursing officer and medical director facilitated nurse and physician participation to obtain timely and successful completion of the program, as evidenced by 80% participation of potential staff and a completion rate of both sessions by 93% of participants. Another barrier may have been the availability for participants to attend education sessions. If the class sessions did not occur on the participant's work day, the participant may not have been willing to attend a session on a non-work day. Other

barriers to consider are those regarding sustainability of the program. Attitudes and commitment from physicians and nurses to support the importance of effective nurse-physician communication and collaboration may determine the success and hardwiring of the program. The potential for hierarchical rank and status delineations as it relates to the physician assuming the superior role in the nurse-physician relationship could also pose a possible barrier (Conway & Hardy, 1988).   Additionally, potential challenges for sustainability include staff turnover, the commitment of nursing and physician hours necessary to attend education sessions, continued leadership support and the required budget to support the program.

Key Stakeholders

The key stakeholders for this project included a wide range of people at NAH and at Norton Healthcare. Nurses, physicians, leadership, patients and families potentially benefited from this program (Table 6).

Table 6

Key Stakeholder List

Doctoral Committee Chair and Committee Members
Medical Surgical/Telemetry Nurses on 4East/West at Norton Audubon Hospital (NAH)
Medical Staff Directors at NAH
Physician Hospitalists at NAH
NAH President and VP of Finance and Operations
Nursing Directors and Nurse Managers at NAH
NAH Quality, Risk & Legal Directors
Norton Healthcare System Senior Vice President and Chief Nursing Officer
NHC Vice President for Norton Nursing Institute
Chief Medical Officer for NHC
Adult Division President for NHC
NAH Human Resources
NAH Nurse Educators and Advanced Practice Nurses
NAH Quality Management Committee

Resources Needed and Estimated Costs

Resources were needed to complete the project. Much of the employee time donated occurred during regular staff meetings (Table 7).

Table 7

Budget for Project

Student, MD director and leaders (donated time)	$40,000
Nurse-Physician Collaboration Video	$350
Office supplies	$100
Printing costs	$200
Room/Computer (Donated by facility)	0
Staff RN time (conducted at staff meeting time)	$3,400
MD donated time (conducted at monthly MD meeting)	$3,000
Total	$47,050

Discussion

The results of the project indicate that nurse-physician communication and collaboration in an acute care hospital can improve with the implementation of an evidence-based education program. There was no significant difference in the JSAPNC pre- and post-intervention. This may be due to the already high pre-intervention mean score on this scale, which was 53.1 out of a possible maximum of 60. This indicates that prior to the study, staff valued the importance of nurse-physician collaboration. The NPS demonstrates that staff saw significant improvements in this collaboration in their practice.

Nurse and physician leaders continue to receive positive comments regarding the notable improvement among nurses and physicians in nurse-physician communication and collaboration. Since the completion of the project, other hospital department medical directors and nursing

leaders have requested implementation of the program on nurse-physician communication and collaboration.

The success of the intervention can be attributed in large part to the high degree of leadership support from the hospital medical director, nurse manager, assistant nurse managers, nurse educator, unit-based advanced practice nurse, staff champions, physician champion and nursing director. Participants were highly engaged as evidenced by the participation rate. Numerous positive comments were made by participants regarding the nurse-physician video which included voluntary nurses and physicians representing the units. In addition, participants responded favorably to the role-play and communication games portion of the educational course. Weeks after the completion of the project, nurses and physicians recognized a remarkable improvement in nurse-physician communication and collaboration.

Limitations

A limitation of this study is the low number of physician participants. Also, the findings are localized to a medical surgical telemetry unit population from one hospital. These setting limitations impact the generalizability of the study. Additionally participants may have been more inclined to participate due to the rank and position of the researcher holding the Chief Nursing Officer title at the institution.

Recommendations for Future Nurse-Physician Collaboration Courses

A recommendation for future nurse-physician communication and collaboration interventions is to include a higher number of physicians in the course. Recruitment should include physicians within additional specialties such as oncology, nephrology, cardiology, and pulmonology. A second recommendation is to conduct the study across various hospital units within an institution. For example physicians and nurses in the emergency department, critical

care units, surgical services, and orthopedic units need to be included. A third recommendation is to broaden the population to include other members of the healthcare team. For example, a study conducted in the critical care unit including physicians, nurses, pharmacists, respiratory therapists and physical therapists could provide valuable information. Finally, conducting the study across several institutions in similar patient care units would improve generalizability.

Additional recommendations for sustainability of the program include implementation of: monthly journal clubs; quarterly lunch meetings with physicians and nurses; annual staff competencies; discussions at medical staff and nursing staff meetings, and hospital quality meetings in which both physicians and nurses are present to discuss the principles of effective nurse-physician communication. Finally, sustainability is needed to ensure that efforts to improve nurse-physician collaboration are continued throughout the organization. This may be achieved through incorporating the program into physician and nurse onboarding and orientation, which would be implemented at the time of staff employment or medical staff privilege approval.

Conclusion

The critical importance of nurse-physician communication and collaboration is evidenced by the fact that one of the 2006 national patient safety goals of the Joint Commission on Accreditation of Healthcare Organizations is related to improving the effectiveness of communication among providers (The Joint Commission, 2010). Poor communication among the interprofessional healthcare team represents a major etiology of preventable adverse events in hospitals (Joint Commission, 2009). The Joint Commission found that communication issues were among the top reason for death related to a delay in treatment, and identified

communication issues as the third highest root cause of sentinel events (The Joint Commission, 2014).

It is imperative for physicians, nurses, nurse leaders, healthcare executives, and organizational leaders who are responsible for nurse-physician communication and collaboration to become actively involved in creating structures that promote effective nurse-physician communication and collaboration. As evidenced by the literature, communication among healthcare providers is a major part of information flow in healthcare, and a major determinant of expected outcomes. Effectiveness of communication is the cornerstone of patient safety (Gurses & Xiao, 2006). Nurses and physicians need assistance from leaders to help facilitate effective nurse-physician communication. Research has shown that providing nurses and physicians with the necessary education on effective communication skills and techniques, nurse and physician communication and satisfaction can improve and ultimately increase patient/family satisfaction (McCaffrey et al., 2010; Olenick et al., 2010). Additionally, improving nurse-physician communication and collaboration may lead to decreased events resulting in harm to patients, decreased nurse turnover, and decreased financial penalties in VBP (James, 2013). The goal in this project was to improve nurse-physician communication and collaboration. The ultimate long-term goal of the project is to decrease patient harm, provide a satisfying environment and experience for patients/families, and provide a satisfying work environment for nurses and physicians.

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Appendix A
Sociodemographic Data

Code # _____

1. Age: _____

2. Gender: M___F___

3. Ethnicity: Caucasian___ African-American___ Hispanic___ Other (please specify) _____

4. RN_____ MD_____

5. Length of time as RN or MD _____

6. Length of time in healthcare _____

7. Length of time at Norton Audubon Hospital_____

8. Length of time on current unit_____

9. Education: ADN___ BSN___ MSN___ MD___ Other_____

10. Certifications obtained_____

11. Have you ever had formalized communication training classes/courses? Y___ N___

12. If so was the communication training completed in a university academic setting? Y__ N__

13. Shift typically worked: Day_____ Evening/Night_____

Appendix B
Nurse Physician Collaboration Scale

INSTRUCTIONS: The purpose of this scale is to determine the extent of collaborative behaviors that generally exists between a single nurse/physician and other physicians/nurses with whom they work in providing patient care. For each statement circle (O) the box that indicates the frequency with which each behavior occurs. Please answer each item as best you can. Rate each behavior on a 5-point scale; (1) Always, (2) Usually, (3) Sometimes, (4) Rarely and (5) Never.

1. The nurses, the physicians and the patient have the same understanding   1 2 3 4 5
   of the patient's wish for cure and care.
2. The nurses and physicians identify the key person in a patient's life   1 2 3 4 5
3. The future direction of a patient's care is based on a mutual exchange   1 2 3 4 5
   of opinions between the nurses and physicians
4. The nurses and physicians seek agreement on signs that a patient can   1 2 3 4 5
   be discharged
5. The nurses and physicians all know what has been explained to a patient   1 2 3 4 5
   about his/her condition or treatment
6. The nurses and physicians share information about a patients' reaction   1 2 3 4 5
   to explanations of his/her disease status and treatment methods
7. The nurses and the physicians together consider their proposals about the   1 2 3 4 5
   the future direction of patient care
8. The nurses and physicians show concern for each other when they are very   1 2 3 4 5
   very tired
9. The nurses and physicians have the same understanding of the future   1 2 3 4 5
   direction of the patient's care
10. In the event of a change in treatment plan, the nurses and the physicians   1 2 3 4 5
    have a mutual understanding of the reasons for the change
11. The nurses and physicians take into account each other's schedule when   1 2 3 4 5
    making plans to treat a patient together
12. The nurses and physicians discuss the problems a patient has   1 2 3 4 5
13. The nurses and physicians help each other   1 2 3 4 5
14. The nurses and physicians share information to verify the effects   1 2 3 4 5
    of treatment
15. The nurses and physicians check with each other concerning whether   1 2 3 4 5
    a patient has any signs of side effects or complications
16. The nurses and physicians greet each other every day   1 2 3 4 5
17. When a patient is to be discharged from the hospital, the nurses and   1 2 3 4 5
    the physicians discuss where the patient will continue to be treated and
    the lifestyle regimen the patient needs to follow
18. The nurses and the physicians share information about a patient's level   1 2 3 4 5
    of independence in regard to activities of daily living
19. The nurses and physicians can freely exchange information or opinions   1 2 3 4 5
    about matters related to work

Nurse Physician Collaboration Scale

20. In the event of a disagreement about the future direction of a patient's care, the nurses and the physicians hold discussions to resolve differences of opinion   1 2 3 4 5

21. The nurses and physicians can easily talk about topics other than topics related to work   1 2 3 4 5

22. The nurses and physicians exchange opinions to resolve problems related to patient cure/care   1 2 3 4 5

23. When confronted by a difficult patient, the nurses and the physicians discuss how to handle the situation   1 2 3 4 5

24. In the event a patient no longer trusts a staff member, the nurses and the physicians try to respond to the patient in a consistent manner to resolve the situation   1 2 3 4 5

25. In the event a patient develops unexpected side effects or complications, the nurses and the physicians discuss countermeasures   1 2 3 4 5

26. The nurses and the physicians discuss whether to continue certain treatment when the treatment is not having the expected effect   1 2 3 4 5

27. The nurses and the physicians discuss how to prevent medical care accidents   1 2 3 4 5

Appendix C
Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration[1]

INSTRUCTIONS: Please indicate the extent of your agreement or disagreement with each of the following statements by circling the appropriate number (4 = strongly agree, 3 = tend to agree, 2 = tend to disagree, and 1 = strongly disagree). For the purposes of this survey, a nurse is defined as "a registered nurse (RN) who is engaged in providing or directly supervising the care of hospitalized patients."

Gender: [1] Male [2] Female   Age (in years): _____

You are a: [1] Nurse Please specify your degree: _____and specialization: _____
            [2] Physician Please specify your primary specialty:
_____

1. A nurse should be viewed as a collaborator and colleague with a physician rather than his or her assistant.   4 3 2 1
2. Nurses are qualified to assess and respond to psychological aspects of patients' needs.   4 3 2 1
3. During their education, medical and nursing students should be involved in teamwork in order to understand their respective roles.   4 3 2 1
4. Nurses should be involved in making policy decisions affecting their working conditions.   4 3 2 1
5. Nurses should be accountable to patients for the nursing care they provide.   4 3 2 1
6. There are many overlapping areas of responsibility between physicians and nurses.   4 3 2 1
7. Nurses have special expertise in patient education and psychological counseling.   4 3 2 1
8. Doctors should be the dominant authority in all health care matters.   4 3 2 1
9. Physicians and nurses should contribute to decisions regarding the hospital discharge of patients.   4 3 2 1
10. The primary function of the nurse is to carry out the physician's orders.   4 3 2 1
11. Nurses should be involved in making policy decisions concerning the hospital support services upon which their work depends.   4 3 2 1
12. Nurses should also have responsibility for monitoring the effects of medical treatment.   4 3 2 1
13. Nurses should clarify a physician's order when they feel that it might have the potential for detrimental effects on the patient.   4 3 2 1
14. Physicians should be educated to establish collaborative relationships with nurses.   4 3 2 1
15. Interprofessional relationships between physicians and nurses should be included in their educational programs.   4 3 2 1