

# Frequency of nurse–physician collaborative behaviors in an acute care hospital

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A new culture bolstering collaborative behavior among nurses and physicians is needed to merge the unique strengths of both professions into opportunities to improve patient outcomes. To meet this challenge it is fundamental to comprehend the current uses of collaborative behaviors among nurses and physicians. The purpose of this descriptive study was to delineate frequently used from infrequently used collaborative behaviors of nurses and physicians in order to generate data to support specific interventions for improving collaborative behavior. The setting was an acute care hospital, and participants included 114 registered nurses and 33 physicians with active privileges. The Nurse–Physician Collaboration Scale was used to measure the frequency of use of nurse–physician collaborative behaviors self-reported by nurses and physicians. The background variables of gender, age, education, ethnicity, years of experience, years practiced at the current acute care hospital, practice setting and professional certification were accessed. In addition to analyzing the frequency of collaborative behaviors, this study compares levels of collaborative behavior reported by nurses and physicians.

**Keywords:** Collaboration, collaborative behaviors, patient safety, physicians, registered nurses, teamwork

## INTRODUCTION

People die due to communication failures. Communication failures are responsible for 70% of 2455 annual sentinel events, and 76% of persons having a sentinel event die [Joint Commission on Accreditation of Healthcare Organizations (JCAHO), 2001]. Communication is one form of collaborative behavior; when collaborative behaviors are not optimally practiced in acute care hospitals the recovery of patients is impaired (Arford, 2005). To date, little is known regarding the levels of collaborative behaviors that currently exist between nurses and physicians in acute care hospitals

(Ushiro, 2009) and which collaborative behaviors are frequently or infrequently used.

The purpose of this evaluative study was to delineate the frequency of use of self-reported collaborative behaviors by registered nurses and physicians in an acute care hospital. The long-term objective is to provide evidence to guide the development of collaborative behavior interventions that, once implemented, may increase the frequency of collaborative behaviors.

The term collaborative behavior has been used interchangeably with *collaboration* and is defined by the interactions in which professionals work together cooperatively with shared responsibility and interdependence (Strichler, 1995). Nurse–physician collaborative behaviors exist as a process of communication between nurses and physicians during the delivery of patient care (Bankston, 2005) and when nurses and physicians work cooperatively, share responsibility for problem solving, address conflict management, perform joint decision-making and use open communication (Boyle & Kochinda, 2004). Collaborative behaviors are described as those actions taken by two or more individuals who are considered collegial equals and have an equal share of power; they are nonhierarchical (Henneman, 1995).

Government reports present compelling evidence that research into eliminating existing barriers to effective nurse–physician collaboration is essential to improve patient safety [e.g. Institute of Medicine (IOM), 2000, 2003, 2005]. In 2000, the IOM report prompted a meeting by the Council on Graduate Medical Education (COGME) and the National Advisory Council on Nurse Education and Practice (NACNEP). The joint meeting was held to further examine nurse–physician collaboration and resulted in a demand for significant cultural change in both medicine and nursing and a call for federally funded research that would focus on eliminating barriers to effective nurse–physician collaboration in acute care hospitals (COGME & NACNEP, 2000).

As a result of these major calls for action, research to date has shown that collaborative practice between nurses and physicians is not the norm despite evidence that collaboration has been associated with decreased mortality, increased job satisfaction, reduced turnover and decreased costs in healthcare institutions. Within the last 10 years, literature regarding perceptions of nurse–physician collaboration by nurses and physicians has consistently demonstrated significant differences between the two groups (Garber, Madigan, Click, & Fitzpatrick, 2009; Hojat et al., 2001; Hughes & Fitzpatrick, 2010; Taylor, 2009). Results of research findings regarding different attitudes toward collaboration indicate that different levels of collaborative behavior would likely follow (Hinshaw, Smeltzer, & Atwood, 1987).

## BACKGROUND

Stein (1967), one of the first researchers to explore collaborative behaviors of nurses and physicians, described the nurse–physician relationship as hierarchical and used the phrase “doctor–nurse game” when he described the physician being superior in the relationship. In 1990, Stein and colleagues revisited the doctor–nurse game only to find that the game is still played and has evolved (Stein, Watts, & Howell, 1990). Several influences contributed including the increased number of female physicians, decreased esteem for physicians secondary to the availability of online information and expansion of nursing utilizing nurse practitioners. Stein points out that the nursing shortage supported the drive for more autonomy that has ultimately given nursing the strength to unilaterally try to stop playing the game. In a recent review of the doctor–nurse game by Reeves, Nelson and Zwarenstein (2008), the authors suggest that the nurse–physician relationship is unchanged despite a link between collaboration and positive healthcare outcomes. In addition, the authors indicate that the intricate web of traditional professional territorial boundaries, claimed by both nurses and physicians, as stifling any progress in achieving the goal of collaboration. Another major barrier, which they argue, to reaching optimal nurse–physician collaboration is the hierarchical structure that exists in acute care hospital settings. Additionally, Nelson, King, and Brodine (2008) state that nurses may be hesitant or reluctant to share their knowledge and professional opinions regarding patient care because of perceived power differences diminishing nurses’ and physicians’ ability to collaborate. Therefore, a great deal of coordination is necessary to keep physicians, nurses and technicians working together as a cohesive unit. Unfortunately, hierarchy often makes it more difficult for medical teams to achieve this level of coordination and cohesiveness. In fact, research suggests that the extreme hierarchical difference between physicians and nurses in particular can contribute to dysfunctional communication yielding less than optimal patient care (Baker, Day, & Salas, 2006).

Many professional organizations, including the IOM, the National Patient Safety Foundation, the American Medical Association, the JCAHO and the Agency for Health Care

Research and Quality, have encouraged changes in communication between health care practitioners and the adoption of key strategies such as collaboration in order to minimize errors (Dougherty & Larson, 2005). Evidence exists linking nurse–physician collaboration with greater nurse job satisfaction, decreased patient mortality and improvement in quality patient care depending on many variables in each individual study setting (Knaus, Draper, Wagner, & Zimmerman, 1986; Kramer & Schmalenberg, 2003; Rosenstein, 2002; Tourangeau, Cranelly, & Jeffs, 2006). Current literature, including descriptive studies, consistently demonstrates that healthcare professionals fail to collaborate fully with each other (Coeling & Cukr, 2000; Zwarenstein, Goldman & Reeves, 2009). Direct measures of the frequency of nurse–physician collaborative behaviors have not been studied; therefore, findings about optimal strategies to decrease errors and improve the frequency of nurse–physician collaborative behaviors are minimal.

One specific area where knowledge is limited is the frequency of nurse–physician collaborative behaviors currently being utilized in acute care hospital settings. Several tools have been reported to measure attitude and perceptions toward collaboration of health care professionals, the Collaborative Practice Scale, the Collaboration and Satisfaction about Care Decisions, and the ICU Nurse–Physician Questionnaire. The Jefferson Scale of Attitudes toward Physician–Nurse Collaboration reported attitudes toward nurse–physician collaboration across genders, professions and cultures (Dougherty & Larson, 2005). The Nurse–Physician Collaboration Scale (NPCS) developed by Ushiro (2009), a researcher in Japan, provides the ability to measure the frequency of nurse–physician collaborative behaviors self-reported by nurses and physicians by measuring specific collaborative interactions between nurses and physicians and not attitudes or perceptions of collaboration. The NPCS consists of three distinct subscales that summarize and reflect the actual levels of collaboration in the work environment of nurses and physicians from the perspective of each profession. According to Ushiro (2009), European and US healthcare institutions are trying to improve the quality of healthcare by strengthening interprofessional collaboration. Similar to the USA, the average length of hospital stay in Japan is currently being shortened in accordance with recent government guidelines, making collaboration more essential as critical decisions are compressed in time and patient turnover increases without increases in staff. The NPCS was utilized in this study to measure the frequency of nurse–physician collaborative behaviors occurring in an acute care hospital setting in the USA.

Another key issue raised by researchers is the lack of specific suggestions for increasing collaboration in the patient care environment (Hamric & Blackhall, 2007). Interventions focused on improving specific infrequently used collaborative behaviors can be created from the findings in this study.

## METHODS

### Design

This descriptive study was conducted using a two-group design. The estimated available nurses ( $N = 200$ ) and physicians ( $N = 100$ ) were physically in the hospital at the time of data collection.

An Investigational Review Board approved this study. The nurse and physician participants were instructed to place the completed questionnaires in an envelope marked “Completed Questionnaires”, which was located on a table in the room. Consent was established with the completion of the questionnaires. The primary investigator analyzed the data using SPSS and an additional person confirmed the accuracy of data entry and statistical values.

*Operational definition of nurse–physician collaborative behavior.* Collaborative behaviors in this study were operationally defined as actions of nurses and physicians related to the sharing of patient information, the decision-making process on cure/care and the relationship between nurses and physicians. In this study, collaborative behaviors were measured in each of these three areas.

### Research questions

The following research questions were addressed in this study:

1. What are the frequently used collaborative behaviors of nurses and physicians for nurses?
2. What are the frequently used collaborative behaviors of nurses and physicians for physicians?
3. What are the infrequently used collaborative behaviors of nurses and physicians for nurses?
4. What are the infrequently used collaborative behaviors of nurses and physicians for physicians?

### Setting

The setting for this study was a nonprofit acute care hospital with 290 licensed beds, located in the Midwest, providing 66,000 patient days; 13,500 admissions; more than 31,000 emergency department visits; 5500 same-day surgery visits and 4000 inpatient surgeries per year.

### Instrument

The NPCCS contains 27 items divided into three subscales: sharing patient information, decision-making process and the relationship between nurse and physician. The items were scored using a five-item Likert scale (1 = always, 2 = usually, 3 = sometimes, 4 = rarely and 5 = never). Total scores

in each subscale range as follows: sharing patient education, 9–45, decision-making process, 12–60 and the relationship between nurse and physician, 6–30. A lower score indicates a higher level of nurse–physician collaborative behavior reported to occur. The NPCCS content validity and internal consistency reliability were established as satisfactory with reliability  $>0.80$  demonstrated by Cronbach  $\alpha$  coefficients and test–retest coefficients  $>0.70$  except for the physician responses regarding sharing of patient information (0.63; Ushiro, 2009). In the present study, the three subscales of the NPCCS had high reliabilities with Cronbach  $\alpha$ 's  $>0.90$ ; the NPCCS total Cronbach  $\alpha$  was 0.85.

Permission to use the NPCCS was obtained from the author. Consent was established with the completion of the questionnaire. No personal identifiers were used on any instrument or data analysis report.

## RESULTS

### Sample characteristics

The sample consisted of 114 nurses (57%) and 33 physicians (37%), resulting in a total sample of 147 subjects. Nurses were primarily female (92%) and physicians were primarily male (72.7%). Over 70% of nurses held bachelor degrees or higher, and 90% (90.9) of physicians were at the attending level. Approximately, 50% of the nurses and 91% of physicians had certification at the time of this survey. The sample included nurses from 19 specialty areas and physicians from 18 specialty areas.

### Results related to research questions

In order to identify the frequently and infrequently used collaborative behaviors, mean item scores were calculated within each subscale and reported for each group (nurses and physicians) in Table I.

Results for the most frequently used nurse–physician collaborative behaviors reported by nurses were in Subscale 1: sharing patient information ( $M = 2.74$ ), and the most frequently used collaborative behaviors of nurses and physicians reported by physicians were in Subscale 3: the relationship between nurses and physicians ( $M = 2.13$ ). The most infrequently used nurse–physician collaborative behaviors of nurses and physicians reported by both nurses and physicians were in Subscale 2: decision-making process on care/cure ( $M = 3.18$ ) for nurses and ( $M = 2.60$ ) for physicians.

### Additional analysis

In addition to delineating frequently from infrequently used collaborative behaviors, this study examined differences

Table I. Differences between nurses and physicians reports of their use of collaborative behaviors ( $N = 147$ )

	Nurse ( $n = 114$ ), $M \pm SD$	Physicians ( $n = 33$ ), $M \pm SD$	$t$ -Value
Subscale 1: sharing patient information	2.74 $\pm$ 0.63	2.27 $\pm$ 0.52	3.93**
Subscale 2: decision-making process on care/cure	3.15 $\pm$ 0.75	2.60 $\pm$ 0.67	3.74**
Subscale 3: relationship between nurse and physician	2.95 $\pm$ 0.71	2.13 $\pm$ 0.73	5.81**
Total score: NPCCS	2.95 $\pm$ 0.62	2.34 $\pm$ 0.53	5.11**

\*\* $p < 0.001$  (two tailed).

between nurses and physicians' self-reported use of nurse–physician collaborative behaviors in order to establish which subscales had the most agreement and the least agreement between groups regarding the level of nurse–physician collaborative behaviors. Independent sample *t*-test was conducted to compare the difference between the mean item score within each subscale for nurses and physicians. The mean item score for Subscale 1: sharing of patient information was 2.74 (SD = 0.63) for nurses and 2.27 (SD = 0.52) for physicians, with  $t = 3.93$  ( $p < 0.001$ ). The mean item score for Subscale 2: decision-making process on care/cure was 3.15 (SD = 0.75) for nurses and 2.39 (SD = 0.67) for physicians, with  $t = 3.74$  ( $p < 0.001$ ). The mean item score for Subscale 3: the relationship between nurses and physicians was 2.95 (SD = 0.71) for nurses and 2.13 (SD = 0.73) for physicians  $t = 5.81$  ( $p < 0.001$ ). Also, there was a significant difference between nurses and physicians on the mean item score for the NPCS for nurses and physicians. The mean item score for nurses was 2.95 (SD = 0.62) and the mean item score for physicians was 2.34 (SD = 0.53) with a  $t = 5.11$  ( $p < 0.001$ ).

## DISCUSSION

This is the first study in the USA utilizing the NPCS to measure nurse–physician self-reported collaborative behaviors that generally exist between a single nurse and physician and other nurses and physicians with whom they work in providing patient care. Delineating frequently and infrequently used collaborative behaviors may have a significant impact on future practices in health care, specifically in areas of quality and safety. This study's findings regarding the frequency of nurse–physician collaborative practice behaviors provide insight into these domains and create additional questions to be explored.

Sharing patient information collaboratively between nurses and physicians is an expected behavior for both groups in order for them to provide patient care while ensuring patient safety. Nurses report sharing information as the most frequent nurse–physician collaborative behavior in this study possibly due to the necessity of providing physicians with pertinent patient information in order to advocate for patients and act as a liaison between patient and physician. When sharing information is not practiced consistently or timely, patients may be at an increased risk for medical errors. Therefore, further examination of the obstacles or inefficiencies to sharing patient information collaborative behaviors, would be prudent considering that these behaviors may be evidence of nurses and physicians working in silos and not together. In addition to teamwork being viewed as necessary to contain costs and sustain quality of care, Hojat et al. (2003) and Knaus et al. (1986) reported that hospitals with excellent nurse–physician communication had the lowest mortality ratios suggesting the expectations of nurses and physicians to share patient information in order to prevent unnecessary patient harm.

Decision-making on care/cure was reported by both nurses and physicians to occur least frequently, which presents a concern related to practice patterns and the tendency of nurses and physicians to work alone rather than together as members of a team. When interactions do occur, Keenan, Cooke, and Hillis (1998) found that nurses and physicians utilized different styles of conflict management behavior with nurses self-reporting collaborating, obliging and compromising styles and physicians, a dominating style. Nurses traditionally display caring behaviors and are likely to avoid aggressive or assertive behaviors thus permitting the physician to dominate the decision-making process. The authors also hypothesized that because nurses have been traditionally socialized to act deferentially toward physicians, they may have learned through failed attempts at participating in decision-making that conveying ideas in a deferential manner results in these ideas being dismissed. In contrast, when nurses conveyed their ideas in a forceful and confrontational manner, physicians were more receptive to collaborating.

This blend of nurse–physician conflict management style and traditional socialization can create an imbalance of power between the two professions and is considered a major impediment to improving nurse–physician collaborative behaviors. These obstacles may have a significant impact on quality and safety as previously reported by Baggs and Schmitt (1988).

The relationship between nurses and physicians subscale of nurse–physician collaborative behaviors was reported to occur most frequently by physicians. One explanation for these results may be the level of familiarity that physicians have with the nurses in this study as the majority of nurses and physicians in the sample had more than 10 years in their respective professions and more than 5 years practicing at this acute care hospital. Nursing leaders in the organization reported that nurses and physicians practice “The Caring Model” developed by Koloroutis (2004), a model that has been introduced at all care levels to both nurses and physicians. A key focus of the “Caring Model” is the nurse–physician relationship. The introduction of this model into this practice setting may have influenced physician's level of self-reported collaborative behaviors.

In this study, physicians reported significantly higher levels of nurse–physician collaborative behavior than their nursing colleagues in all three subscales. This finding is consistent with previous research findings in that physicians and nurses differ regarding their perceptions of collaborative behaviors (Hojat et al., 2001).

## Implications

This study has direct implications for practice in nursing and medicine, health care organizations and leadership. First, it is essential that leadership commits to ensuring that collaboration is an organizational goal, with individuals acknowledged for their contributions to interprofessional teamwork and patient care outcomes. During these unprecedented times of change in the health care delivery system essentially demanding cost containment with preservation of quality,

organizations have a need for increased teamwork and interprofessional collaboration by both nurses and physicians (Hojat et al., 2003). According to Zwarenstein and Reeves (2006), “an increasing empirical literature supporting interprofessional collaboration suggests that failures of collaboration between professionals have a profound negative effect on health care and health outcomes, undermining the validity of clinical decisions, and interrupting or creating errors in the implementation of these decisions” (p. 47).

Current research findings indicate that it is not clear whether nurses and physicians define collaboration in the same manner and should incongruencies exist, they should be addressed before implementing strategies to improve collaborative behaviors Keenan et al. (1998). Exploration of nurses’ and physicians’ understanding of collaborative behavior in this organization may be a needed first step in the evaluation process followed by the establishment of a mutual definition of collaboration by nurses and physicians. Authors with similar findings, in that physicians believed they were collaborating with nurses yet nurses perceived otherwise suggest strong consideration be given to educating nurses and physicians together regarding collaboration in an effort to build a consensus from nursing and medicine that join the different perspectives and understanding of collaborative behaviors (Copnell, Johnston, Harrison, Wilson, Robson, Mulcahy, & Best, 2004).

Further examination of this study’s results within the organization may provide new opportunities to remove social and/or structural barriers to achieving higher levels of collaborative behavior among physicians and nurses. Repetition of this study following implementation of interventions to improve collaborative behaviors may have a positive impact on the level of nurse–physician collaboration and thus create a cultural change over time.

Lastly, in order to improve nurse–physician collaboration, there must be more opportunities for creating open forums, group discussions, collaborative workshops and training programs that focus on developing working relationships such as conflict management, collaboration skills, respect, assertiveness training and stress management (e.g. Rosenstein, 2002). A relatively new approach to improving collaboration was suggested by Zwarenstein and Reeves (2002) and included the use of regular, ongoing interprofessional negotiation between individual nurses and physicians as well as other health professionals. They suggest using negotiation theory developed by Strauss and colleagues as a method that may be useful in organizations. In terms of a training opportunity, Maxson et al. (2011) reported a positive outcome using high-fidelity simulation-based team training as a potential venue for improving nurse–physician collaboration in clinical decision-making. Although the study was small, it demonstrated that at 2 weeks and 2 months, nurses and physicians perception of collaboration improved but it is unknown whether these results can be sustained over longer periods of time (Maxson et al., 2011). An interaction that may be overlooked because it is not new is nurse–physician rounding. Burns (2011) suggests that

making the dedicated time for nurse–physician rounds may improve relationships between caregivers, and positively affect communication and the patient’s perception of patient care. Many nurses and physicians may have had previous experiences with rounding that were inefficient thus creating disinterest in this approach but Burns (2011) found with strong physician support and consistent coaching by nurse leaders, the outcomes of improved communication and collaboration did improve.

Limitations of this study include the small size and the use of convenience sampling at one hospital limiting the ability to generalize the findings to a broader population of nurses and physicians. In review of the total population, 57% of nurses and 33% of physicians responded to the survey. The potential exists that those who chose to participate are those who value collaboration. Although the nurse and physician participants were from a variety of specialty areas, all were at one institution therefore results might not be applicable to other institutions.

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