February 6, 2013

Members of the Senate Committee on Health and Human Services
Colorado State Senate
ATTN: Staff Member Dave DeNovellis

Members of the House Public Health and Human Services
Colorado State House of Representatives
ATTN: Staff Member Elizabeth Burger

Members of the House Health, Insurance, and Environment
Colorado State House of Representatives
ATTN: Staff Member Amanda King

This letter is sent on behalf of the Pilot Program Implementation Committee (PPIC) authorized by the state legislature in 2008 (SB08-188) to implement a study on nursing involvement in decision making in issues of concern in several Colorado Hospitals. The study was an outcome of the work of the **Governor's Task Force on Nurse Workforce and Patient Care** that issued a summary report in December 2007. A final report to the members of the health committees at the State Legislature was a requirement under the legislation.

The study was a recommendation under the task force's discussions on workforce shortage, retention of nurses, and concerns on staffing issues. One of the underlying premises of the recommendation was that involvement of nurses in decision making that affects nursing practice is beneficial. The purpose of the study was to generate knowledge about what nurses think about their current level of involvement in decisions about patient care, the work environment, and planning for staffing. The PPIC planned the research study, which took approximately 18 months in a unique process that included representation from diverse health care community stakeholders. Direct care nurses were also involved in planning the research study. (Please refer to the listing of the PPIC organizations and representatives.) The more recent work has focused on dissemination and presentations of the study findings.

The study was conducted in two phases – a qualitative and quantitative study. In the quantitative study 15 Colorado hospitals were selected randomly. The state was stratified by geographic region. Ten hospitals participated in the data collection and a total of 54 patient units were represented in the final analysis. Collection of unit level data was an important aspect of the study. Please refer to the two page handout: *Giving Nurses a Voice: Pilot Program Research Report* for a summarized review of the study.

A thorough description of the study is provided in an article published in the prestigious nursing journal, *The Journal of Nursing Administration, July/August 2012.* The article "*Involving Nurses in Decisions"* is provided for your review.

The researchers studied nurse level characteristics (involvement, intent to leave, satisfaction), unit level issues (turnover, patient satisfaction, patient complaints, infections, and adverse events), and descriptive statistics. Infections included ventilator associated pneumonia, urinary tract infection and central line associated blood infections. Adverse events included patient falls, pressure ulcers, and medication errors.

The study supported that nurses believed they were highly involved in decisions about patient care. Nurses felt less involved in decisions about work methods. Nurses felt least involved in decisions about the organizational work environment.

Important Findings

- *Having systems of involvement available is what is important – even when nurses do not take advantage of them. Nurses want the opportunity to be heard.*
- Involving nurses in decisions that affect them enhances nurse retention and reduces the rate of adverse patient events. Patient care units with high overall involvement had fewer nurses thinking of quitting and had lower rates of catheter associated blood infections and pressure ulcers.
- Involving nurses in decisions was related to better overall nursing satisfaction and fewer nurses with intent to leave.
- Involvement was correlated with patient satisfaction.
- Formal and informal systems were related to nurse and patient satisfaction, with informal systems more strongly associated with satisfied nurses
- Perceptions that the "organization is listening" and values nurse input were associated with lower turnover rates.

Implications

- Involving nurses in decisions that affect them enhances nurse retention and reduces the rate of adverse patient events.
- Involving nurses in planning for staffing has an impact on nurse retention and affects patient satisfaction with nursing care. In this study, nurses do perceive that they are involved in planning for staffing.
- Systems of involvement do not have to be highly structured or formalized; informal systems may be as effective
- Involving nurses in assessing the outcomes of their decisions is associated with improved outcomes
- *Critical is the perception that the nurses opinion is solicited, valued, and used in the decision making*

One of the significant accomplishments of the study was in the number of prestigious recognized nursing entities that accepted this study for formal presentations. Please refer to the listing of

refereed presentations to diverse audiences that include national level presentations with the American Organization of Nurse Executives, international presentation to Sigma Theta Tau International, national presentation at the American Nurses Association's Nurse Quality Conference, national presentation at the Magnet Conference, and state level presentation at the Rocky Mountain Regional Research Conference. Presentations were also provided to broader nursing audiences as well.

Funding for the study was provided by the State of Colorado, The Colorado Trust, and the Denver Chapter of Sigma Theta Tau International Honor Society of Nursing. The Colorado Center for Nursing Excellence served as the administrator for the project work. The Department of Regulatory Agencies (DORA) coordinated the legislative funding authorization and served as early consultants on the project.

For legislators and those involved with public policy decisions, this study provides an objective basis on which to evaluate nurses' perceptions about involvement in decisions in their hospital in Colorado. The study also affirms that there is evidence based value for involving nurses in decision making. Further, it is not hard or expensive to do. Involving nurses in decision making is just as effective through informal structures as with formal structures, and perhaps more so. ***Critical is the perception that nurse's opinion is solicited, valued, and used in decision making.***

Please contact the Colorado Center for Nursing Excellence, Leslie Modesitt, 303-715-0343, extension 13, Leslie@ColoradoNursingCenter.org, if you have questions related to this study or if you are interested in a formal presentation on the study from one of the PPIC committee presenters. The PPIC acknowledges and thanks the Colorado Legislature and other funders for support of this important study in Colorado.

Respectfully submitted,

Fran Ricker, Executive Director
Colorado Nurses Association
Co-Chair Pilot Program Implementation Committee

Carolyn Sanders, CNO
University of Colorado Hospital
Representing Colorado Hospital Association
Co-Chair Pilot Program Implementation Committee

cc: Former State Senator Betty Boyd
DORA – Health Care Section Director Ronne Hines
Chris Adams, Facilitator, Governor's Task Force on Nurse Workforce and Patient Care

GOVERNOR'S TASK FORCE ON NURSE WORKFORCE AND PATIENT CARE SB08 - 188

ATTACHMENTS

- **A:** **Pilot Program Implementation Committee (PPIC)**
- **B:** ***Giving Nurses a Voice: Pilot Program Research Report***
- **C:** ***"Involving Nurses in Decisions", The Journal of Nursing Administration, July/August 2012***
- **D:** **Listing of Presentations**

ATTACHMENT A: Pilot Program Implementation Committee (PPIC)

Name	Title	Representative Organization
Fran Ricker	Co-Chair	Colorado Nurses Association
Carolyn Sanders	Co-Chair	Colorado Hospital Association
Ned Calonge	Member	Colorado Department of Public Health and Environment
Colleen Casper	Member	Colorado Organization of Nurse Leaders
Lysa ErkenBrack	Member	Governor's Appointee
Lydia Handberry	Member	Governor's Appointee
Kathy Harris	Member	Colorado Hospital Association
Eve Hoygaard	Member	Colorado Nurses Association
Judy Hutchinson	Member	Service Employees International Union
Kelly Johnson	Member	Colorado Organization of Nurse Leaders
Sharon Pappas	Member	Colorado Center for Nursing Excellence
Bernie Patterson	Member	Service Employees International Union
Nancy Smith	Member	Colorado Council of Nurse Educators
Linda Stroup	Member	Colorado Council of Nurse Educators
Senator Betty Boyd		Interested Party/Observer
Linda Hattenbach		Interested Party/Observer
Janet Houser	Researcher	Interested Party/Observer
Janet Stephens		Interested Party/Observer

ATTACHMENT B: Giving Nurses a Voice: Pilot Program Research Report

Giving Nurses a Voice: Pilot Program Research Report

Background: Many states mandate the involvement of staff nurses in planning and monitoring staffing. Yet little evidence exists to demonstrate if these requirements generate positive outcomes. In 2008, the Colorado State Legislature authorized the implementation of a study of the impact of nursing involvement in decision-making on patient and nurse outcomes. This study resulted from the work of the Governor's Nurse Workforce and Patient Care Task Force, which issued summary recommendations in 2007. One of the premises of the Task Force was that involvement of nurses in decision making – specifically related to planning for staffing – affects nurses and patients in a positive way. Senate Bill 08-188 enacted legislation directing a planning committee to study this assumption. The committee included diverse stakeholders from healthcare organizations statewide. The committee, advised by a research consultant, designed and implemented a research study of Colorado hospitals to determine the effectiveness of nurse involvement. Subsequently, the Colorado Trust and Sigma Theta Tau International (honor society for nursing) provided financial support for completion of the study.

The fundamental question helps guide policy: Does involvement of nurses in decisions – specifically related to planning for staffing – improve outcomes in such a way that involvement should be mandated?

Purpose: This study sought to describe nurses' perceptions about their current level of involvement in hospital decisions, including planning for staffing. The nature and strength of the relationship between staff nurse perceptions of involvement and organizational outcomes was determined. In particular, the study was to determine if involvement in planning for staffing has a positive impact on patient and organizational outcomes.

Collaboration of ideas with other disciplines was a key finding in terms of desired involvement. Most important was the perception that nurses' input was being heard and valued by leadership. "Give nurses a voice" was a common refrain.

Methods: Nurses from ten randomly selected hospitals participated in focus groups focused on nurse involvement in decision-making. The feedback from these nurses helped determine the elements of nurse involvement, and subsequently a survey of these elements. To gather quantitative data, fifteen Colorado hospitals were selected using geographic stratified random sampling; ten agreed to participate and nine submitted usable data. The unit of analysis was a Patient Care Unit (PCU), with a final sample size of 54 PCUs. Survey data were collected directly from staff nurses (40% response rate) using an electronic survey. These data included eleven

"involvement" questions (α=.925,) three questions about intent to leave (α=.933,) and the Practice Environment Scale, a measure of nurse satisfaction previously validated and used in the NDNQI data set. Data collected at the PCU level included eleven indicators factored into "patient satisfaction" (overall satisfaction; satisfaction with nursing care; patient complaints) "nurse satisfaction" (thinking of quitting, actively looking for another job, preparing to leave, raw turnover) "infections" (CAUTI, CLABSI, and VAP) and "adverse events" (pressure ulcers, patient falls.) Correlation analysis was employed to determine the strength and direction of relationships. Multivariate analysis of variance (MANOVA) was used to determine if PCUs with high levels of involvement differed on the outcome variables from those with low levels of involvement.

Formal structures for involvement were not associated with either patient or nurse outcomes. It appears that informal mechanisms are just as effective – if not more –than highly formalized systems.

Results: By and large the nurses in Colorado have a relatively high level of involvement in patient care decisions and moderately so in organizational decisions. Most nurses in Colorado are satisfied with their jobs, and having systems for nurse involvement enhances this satisfaction. Nurses on PCUs with high involvement were less likely to think of quitting; patients on these units had fewer infections and pressure ulcers. PCU's that involved nurses in planning for staffing had higher patient satisfaction with nursing care, but this variable was not associated with any other outcomes. Formal structures for involvement were not associated with either nurse or patient outcomes. Informal involvement structures were more strongly associated with nursing satisfaction. Involving nurses in outcomes evaluation was associated with lower pressure ulcers and infections. Nurses' perceptions that the organization was supportive of their involvement had the greatest impact; it was associated with lower adverse events, infections, and patient complaints.

Involving nurses in decisions is related to enhanced nurse and patient satisfaction and reduction in adverse events. However, it does not appear that specifically involving nurses in planning for staffing has a dramatic impact on outcomes. Rather, demonstrating organizational support for and appreciation of nurse involvement is the strongest way to get the greatest return.

Implications: Involving nurses in decisions is related to nurse and patient satisfaction and reduced adverse events. It does not appear that involving staff nurses in planning for staffing has a dramatic impact on outcomes. It is not necessary to have sophisticated formalized structures in place to affect the outcomes; informal structures may be more strongly related to nurse satisfaction. Involving nurse in examining outcomes is may reduce pressure ulcers and some infections. A critical influence is the perception that the organization supports and values nurse involvement in decisions.

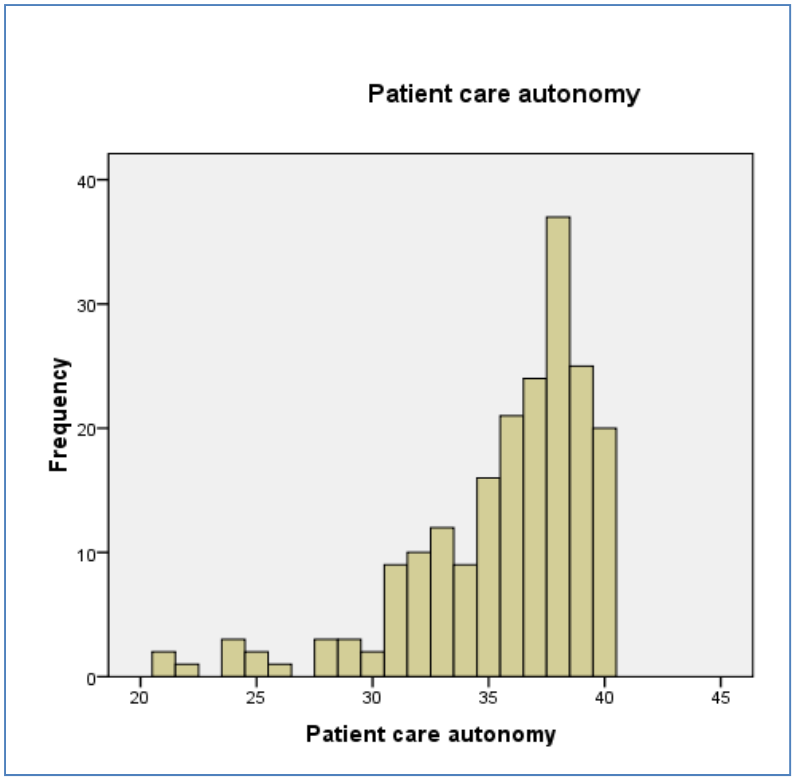

Figure 1 Most Nurses have considerable autonomy with respect to patient care decisions

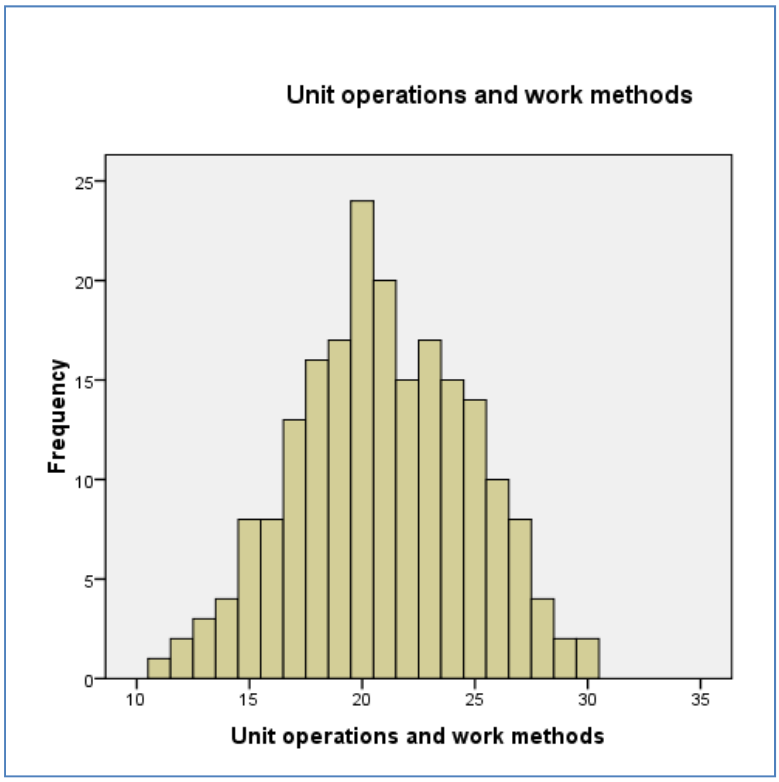

Figure 2 Less strong is involvement in operations and work methods

Figure 3 Most nurses are involved in some way with planning for staffing

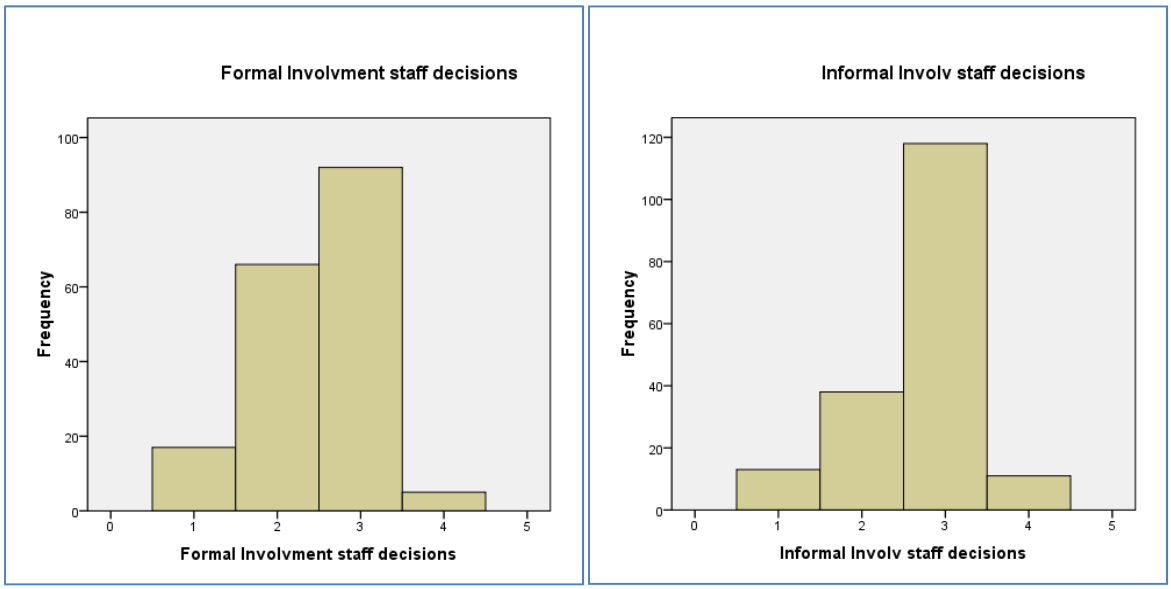

Figure 4 & 5: More nurses are involved with informal than formal systems

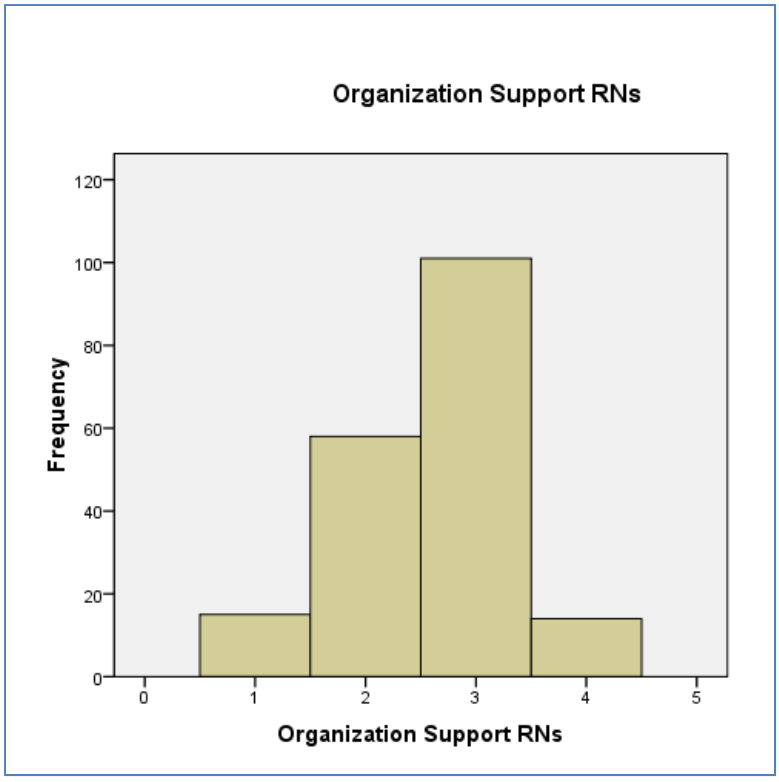

Figure 5 Most desired is organizational support for nurse involvement

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Involving Nurses in Decisions

Improving Both Nurse and Patient Outcomes

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Objective: The objective of this study was to determine the relationship between nurse involvement in decisions and nurse-patient outcomes.
Background: Evidence demonstrates that nurse involvement is associated with satisfaction, but little evidence exists about patient effects. Because of significant resource expenditure, evidence about expected outcomes is needed.
Methods: Outcomes classified as patient satisfaction, nurse satisfaction, infections, and adverse events were compared between units with high and low levels of involvement from 9 hospitals in Colorado.
Results: Involving nurses in outcomes evaluation was associated with better patient outcomes. High involvement units had fewer infections and pressure ulcers.
Conclusions: A formal structure was not required to involve nurses in decisions and is related to nurse and patient satisfaction demonstrating a reduction in adverse events.

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The authors declare no conflicts of interest.

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A direct relationship exists between job satisfaction, retention, and nurses' involvement in decisions about the work environment.[1] Maintaining a stable workforce contributes to a top-performing organization.[2,3] The association between involvement and nurse satisfaction is well established, but other associations, specifically with patient outcomes, are less clear. Developing formal systems for nurse involvement requires organizational investment and can be time consuming. Evidence is needed to demonstrate outcomes that can be expected from involving nurses in decisions about their patients, their work units, and the organization.

Background of the Project

This study resulted from work in Colorado by the Governor's Task Force on Nurse Workforce and Patient Care. Of the 3 major areas of recommendations issued by the task force in 2007, one was focused on issues of retention and the work environment. The recommendation included an emphasis on staffing and raised the possibility of requiring nurse involvement in decision making about issues of concern to direct care nurses. A premise of the task force was that involvement of nurses in decision making—specifically related to planning for staffing—positively affects nurses and patients.

The task force agreed that any recommendations to inform policy should be based on evidence. Yet no evidence was identified that demonstrated that requirements for nurse involvement in staffing decisions generate positive patient outcomes. In 2008, Colorado Senate Bill 08-188 (http://www.state.co.us/gov_dir/leg_dir/olls/sl2008a/sl_202.htm) enacted legislation directing a study of the impact of nursing

involvement in decision making on patient and nurse outcomes. The study, designed by a committee of stakeholders from statewide healthcare organizations, included professional nursing associations, hospitals, nurse leadership, nurse educators, policy makers, and direct care nurses. Assisted by a research consultant, the committee planned and implemented a statewide study over an 18-month period.

Literature Review

Literature related to nurse involvement in decision making and the effects on nurse, patient, and organizational outcomes is limited in both number and quality. Historically, most of the research related to organizational factors is focused on characteristics that lead to nurse satisfaction.

Utriainen and Kyngas[4] conducted a literature review of hospital nurses' job satisfaction and located 21 scientific articles. Three significant characteristics emerged related to nurses' job satisfaction: interpersonal relationships between nurses, the opportunity to provide quality patient care, and the organization of nursing work. Two values related to interpersonal relationships included participation and open discussion of unit issues.

Studies in the nursing literature have suggested relationships between formal shared governance structures and outcomes including work environment, satisfaction, and financial implications. Most of these studies were based on anecdotal information, single-site cross-sectional studies, or pre-post convenience samples.[5] There is an absence in contemporary literature analyzing specific outcomes associated with the establishment of formal models of shared decision making.

In a comparative descriptive design, Mrayyan[6] demonstrated that autonomy plays a strong role in nurse satisfaction. However, nurses were often dissatisfied with their current levels of autonomy and wanted greater participation in decision making. These findings were confirmed by Mangold[7] and Scherb et al,[8] who surveyed nurses and nurse managers regarding their desired and perceived level of decisional involvement. The majority of direct care nurses wanted more involvement in unit governance than they perceived they had, and more than their managers believed they had. Nurses with high levels of decisional involvement reported greater satisfaction with their jobs.

Theoretical Framework

The work of Weston[9] guided the research design (Figure 1). Her study revealed that shared decision making in nursing is a process consisting of multiple phases. The 1st phase, identification, is involvement in identifying problems or issues. Searching for solutions and generating alternatives are the 2nd phase, followed by involvement in the actual selection of a potential solution for implementation. The final phase is involvement in implementation of the solution. Weston's work found that direct care nurses were involved in all 4 phases regarding decisions about patient care. Involvement in organizational governance by direct care nurses was the least comprehensive.

The committee identified 4 potential ways in which direct care nurses could share decision making. With regard to patient care, direct care nurses often make decisions independent of leadership.

Figure 1. Theoretical framework for the study.

Organizational governance, in contrast, carries with it very little direct care nurse involvement. A final element of the framework was evaluation of the decision, followed by formal and informal feedback loops about the results of the involvement. The theoretical framework served as the basis for selection and development of instruments, design of the study, and identification of outcome measures.

Purpose of the Study

The purpose of this study was to generate knowledge about nurse involvement in decision making and its relationship to specific nurse and patient outcomes. The research questions were as follows:

1. In acute care hospital units, what is the association between nurse involvement in decision making and selected patient care outcomes?
2. Which involvement methods and systems are most effective with respect to selected patient care outcomes?

Methods

Study Design and Sample

This study was a causal-comparative design using both correlation and inferential techniques. The unit of analysis was a patient care unit (PCU) in an acute care hospital.

Fifteen Colorado hospitals were selected using stratified random sampling. The state was stratified into 5 geographic regions, and 3 hospitals were randomly selected from each region. The unit of analysis was a PCU; eligible PCUs were defined as inpatient units that deliver 24-hour care. All regularly scheduled, full- and part-time direct care nurses on selected units were eligible to participate. Emergency departments, surgical suites, and ambulatory clinics were excluded. Ten hospitals agreed to participate, and 9 submitted usable data. A total of 54 PCUs were represented in the final analysis.

Instruments

Three instruments were used to collect data from nurses regarding their perceived involvement in decisions, intent to leave, and current job satisfaction. The Houser/Graham-Dickerson (HGD) measure of involvement was developed for this study based on an analysis of qualitative focus group themes. The HGD measure of involvement (see Figure, Supplemental Digital Content 1, http://links.lww.com/JONA/A82) is a Likert-type scale with 11 questions asking the nurse to rate their perceptions of involvement in decision making, formal and informal systems for involvement, organizational support, and outcomes measurement. The instrument was tested for reliability by 30 acute care hospital nurses who were uninvolved in the subsequent study. Cronbach α was calculated as .895. The instrument was reviewed by 3 nurse administrators who agreed upon face validity.

Three questions were asked of nurses regarding their intent to leave; a Cronbach α of .903 was reported previously.[10] Nurse satisfaction was measured using the Stamps Work Environment Scale (WES), which is used by the National Database of Nursing Quality Indicators (https://www.nursingquality.org/). The WES has been tested extensively and has demonstrated acceptable reliability and validity.[11] Permission to use the WES was provided by the instrument developer.

Procedures

Institutional review board approval was received at each of the 9 hospitals, and all nurses who responded to the survey signed consent to participate. Nurse involvement and satisfaction measures were collected via Internet-based survey (Zoomerang), accessed through a URL sent to staff via work e-mail address.

Unit-level indicators were recorded by unit managers into an online data repository. In some cases, research team members went on-site to help retrieve and record data. These indicators included an additional measure of nurse satisfaction (voluntary turnover), 3 measures of patient satisfaction (patient complaints, overall satisfaction with care, satisfaction with nursing care), 3 measures of infections (catheter-associated urinary tract infections [CAUTIs], central line–associated blood sepsis infections [CLABSIs], ventilator-associated pneumonia), and 3 measures of adverse events (pressure ulcers [PUs], medication errors, patient falls).

Data Analysis

The data were summarized using appropriate descriptive statistics. Pearson product-moment correlations and χ^2 analyses were used to determine associations between measures of involvement, intent to leave, satisfaction, and patient outcomes.

A summary score was created for the HGD measure of involvement. A categorical variable was created for the summary score and each of the individual items by classifying scores into ±1 SD from the median. Units with scores less than 1 SD from the median were classified as low involvement units, and units with scores greater than 1 SD from the median were classified as high involvement units. Units with remaining scores were classified as moderate involvement units. These classifications were used as factor levels of the independent variable in

a multivariate analysis of variance. Outcome variables were grouped into 4 factors: nurse satisfaction, patient satisfaction, adverse events, and infections. A multivariate analysis of variance was conducted to determine if the outcome variables differed with respect to low, moderate, and high involvement. All analyses were conducted using SPSS v18.0 (SPSS Inc, Chicago, Illinois).

Results

Characteristics of the Sample

The final sample consisted of 54 PCUs from 9 acute care hospitals. The sample of PCUs included geographically diverse hospitals, classified into 3 categories: 40.7% (n = 22) were from acute care, urban hospitals; 38.9% (n = 21) were from community hospitals, including small suburban hospitals, rural hospitals, and critical access hospitals; and 20.4% (n = 11) from were regional hospitals or hospitals in nonurban areas serving a large geographic area; 27.8% (n = 15) were critical care units, including telemetry and step-down units as well as intensive care. Medical-surgical units made up 46.3% (n = 25) of the final sample. Small and critical access hospitals that had no subunits were classified as medical-surgical. Maternal/child units, composed of obstetrics, neonatal, and pediatrics, made up 14.8% (n = 8) of the sample, and mental health and rehabilitation made up 5.6% (n = 3) each. Of the 9 hospitals, 1 was Magnet® designated, 4 were aspirants in the process of Magnet application, and 4 were neither Magnet designated nor Magnet aspirants.

Direct care nurse data were collected from 420 nurses. Determining response rate for Internet-based surveys is difficult, and little literature exists to guide its calculation. Of the 1,406 nurses who were eligible for the study, 1,052 opened the e-mailed survey link, and 401 completed the survey. Response rate was calculated by dividing the number of completed surveys by the number of nurses who opened the survey containing the link. Nursing response rates on individual units ranged from 20.0% to 90.0%, with an overall response rate of 38.1%. Demographic characteristics of the sample appear in Table 1. Respondents were relatively evenly divided between ADN and BSN education, with an average of 9.1 years at their hospital and 7.4 years on their current unit. The majority were direct care nurses, followed by charge nurses and clinical nurse specialists. All respondents delivered direct patient care for some or all of their workday.

The majority of nurses in this sample were satisfied with their current job situation, with a mean score on the Stamps Summary Score of Satisfaction of 25.7 (SD, 4.6) on a scale with a range of 0 to 40. Of these nurses, 19.1% (n = 68) responded that they were thinking of quitting, but only half of these reported actively looking for alternative employment; 5.8% (n = 22) reported that they intended to quit in the next year. Nurses reported varying levels of current involvement in decision making within the organization. Figures 2 to 4 represent these nurses' perception of their current level of involvement in decisions related to patient care, unit operations, and overall governance. Nurses perceive that they are strongly involved in patient care decisions, but less so in unit operations and even less in overall governance. Unit-level mean values for involvement questions appear in Table 2.

Table 1. *Descriptive Data for Staff Nurse Subjects*

Staff Nurse Descriptive Data	% (n) or Mean (SD)
Highest degree held	
ADN/diploma	44.0% (182)
BSN	43.0% (188)
BS, other	4.8% (20)
MSN	3.4% (14)
MS, other	4.3% (18)
Other/missing data	1.9% (8)
Certifications	
Yes	28.4% (156)
No	61.6% (250)
Title on unit	
Staff nurse	76.3% (316)
CNS	8.7% (36)
Charge nurse	12.6% (52)
Other	2.0% (8)
Years on unit	7.4 (7.37)
Year at hospital	9.1 (8.41)
Years in specialty	11.8 (10.19)

Correlations and Associations

At the direct care nurse level, involvement in decisions was related to overall work satisfaction and intent to leave. The relationship between perceived involvement and overall satisfaction was moderately strong ($r = 0.667$, $P < .001$) and was moderately and inversely related to intent to leave ($r = -0.495$, $P < .001$).

There was a strong, statistically significant, association between formal systems for involvement and intent to leave ($\chi^2 = 33.65$, $P < .001$) and also between informal systems for involvement and intent to leave ($\chi^2 = 28.49$, $P < .001$). Both relationships were inverse, in that higher involvement scores were associated with lower intent to leave. Interestingly, functionality of formal or informal involvement

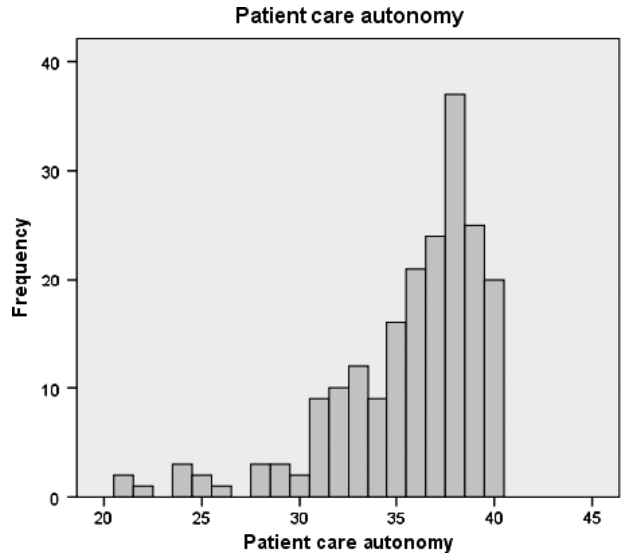

Figure 2. Perceived involvement in patient care decisions by RNs.

systems was not significantly associated with satisfaction or intent to leave.

Organizational support for direct care nurse involvement was inversely associated with actively looking for other jobs (χ^2 = 22.46, P < .001). Neither involvement in planning for staffing nor feedback systems was significantly associated with intent to leave or satisfaction.

Inferential Analysis

Multivariate analysis of variance using levels of involvement as the factor and 4 groups of outcomes (nurse satisfaction, patient satisfaction, adverse events, and infections) was conducted. Multivariate analysis of variance is appropriate when outcome variables are expected to share variance.[12] Overall, units whose nurses perceived high levels of involvement had lower levels of intent to leave (F = 4.787, P = .012), fewer catheter-associated blood infections (F = 3.944, P = .025), and fewer PUs (F = 3.869, P = .027) than units with low perceived levels of involvement.

Table 3 demonstrates the specific differences in outcome variables by involvement item. Units that involved nurses in planning for staffing had higher patient satisfaction with nursing care than units with low involvement. Informal structure and functionality of those systems were associated with lower intent to leave and a reduced rate of CAUTIs. Accountability for efficacy of decisions and involvement in outcomes evaluation were associated with lower

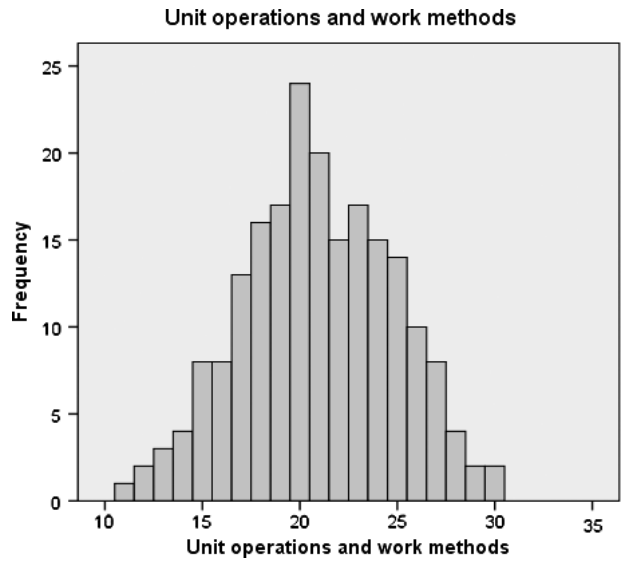

Figure 3. Perceived involvement in unit operations by RNs.

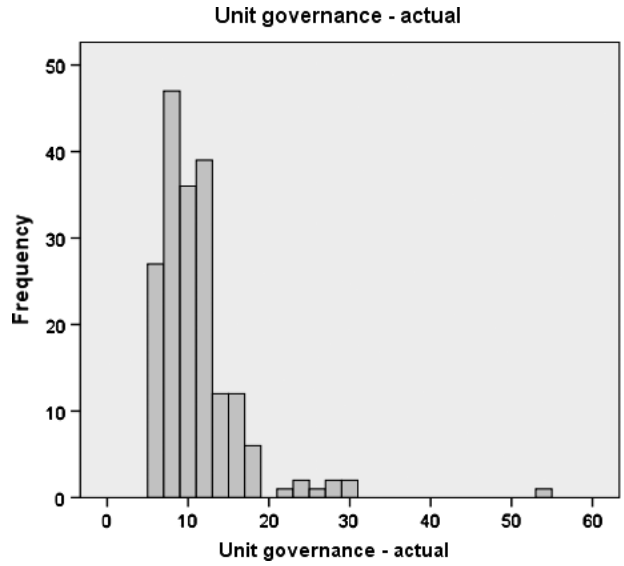

Figure 4. Perceived level of involvement in governance by participating RNs.

rates of PUs, CLABSIs, and nurse intent to leave. The greatest number of outcomes was associated with overall organizational value and support for nurse involvement, including reduced CLABSI, fewer PUs, and fewer patient complaints. No differences were detected in outcomes related to formal structures and function, accountability for outcomes, or formal and informal feedback systems.

Discussion

This work adds to the body of nursing evidence related to unit and organizational effectiveness. Results indicate that decisional involvement on the part of nurses is indeed related to both nurse and patient outcomes. Furthermore, the random sample and statistical treatment of these data support generalizability of the results.

Table 2. Unit Means for Involvement Items

Involvement Item	Unit Base Mean (SD)
Planning for staffing	2.58 (0.28)
Formal structures	2.41 (0.27)
Informal structures	2.70 (0.23)
Formal functionality	2.42 (0.32)
Informal functionality	2.67 (0.26)
Organizational support	2.56 (0.35)
Accountable for decisions	2.56 (0.28)
Accountable for efficacy	2.57 (0.26)
Outcome evaluation	2.53 (0.28)
Formal feedback	2.41 (0.31)
Informal feedback	2.54 (0.22)

The theoretical framework was partially supported by these findings. As with Weston,[9] these nurses reported a high level of involvement in decisions about nursing practice, less in decisions about unit-based work methods, and even less in organization-level decisions about the work environment. There was a linkage, as hypothesized in the theoretical model, between involvement in decisions and both patient and nurse outcomes. However, nurses did not confirm the need for structured approaches to shared decision making or formal feedback systems. These results support that any type of involvement can lead to improvements in nurse and patient satisfaction and the avoidance of adverse patient events.

Overall, it does appear that involving nurses in decisions about patient care, work methods, and organizational effectiveness has an impact on nurse satisfaction, nurse retention, avoidance of adverse events, and reduction of infections. Given the findings that highly structured systems are not necessary to achieve these results, the cost-effectiveness of giving nurses a voice has the potential for dramatic effects on costs. The lower rates of CAUTIs, CLABSIs, and PUs directly translate into cost savings. The monthly cost of antibiotics for treatment of a CAUTIs has been estimated as $3,480.[13] Treating a stage III or IV PU is approximately $40,000,[14] and the average cost of care per episode of central venous–associated complications is $9,710.[15] These are direct treatment costs and do not include lost revenue associated with nonreimbursement or the potential for litigation-associated costs. The costs of avoidable human suffering are incalculable. It is clear that involving nurses in decisions that prevent even a

Table 3. Significant Differences in Outcomes Based on Level of Involvement

Involvement Item	Outcome	*F*	Outcome	*F*	Outcome	*F*
Planning for staffing	Satisfaction with nursing care	3.44[a]				
Formal structures		N/S				
Informal structures	CAUTI	4.95[b]	Thinking of quitting	7.96[c]	Actively looking	7.68[c]
Formal functionality		N/S				
Informal functionality	Thinking of quitting	4.09[a]	Actively looking	3.30[a]		
Organizational support	Pressure ulcers	3.88[a]	Patient complaints	3.09[a]	CLABSI	3.91[a]
Accountable for outcomes		N/S				
Accountable for efficacy	Pressure ulcers	3.40[a]				
Outcomes evaluation	Pressure ulcers	4.50[a]	CLABSI	4.59[a]	Thinking of quitting	3.39[a]
Formal feedback systems		N/S				
Informal feedback systems		N/S				

Abbreviation: N/S, not statistically significant.
[a]$P < .05$.
[b]$P < .01$.
[c]$P < .001$.

small number of these adverse events will produce a large return on investment.

Specifically, this study enables conclusions about the kinds of involvement that are likely to lead to beneficial outcomes. This study separated the effects of formal and informal systems of involvement, impact of structure and function of involvement systems, and the role of leadership in ensuring the involvement of nurses is valued and acted upon. This study revealed that nurses expect to be held accountable for their decisions and that feedback systems are not necessarily imperative for involvement to be effective.

Challenges of Organizational Research

Organizational studies in which the PCU is the analysis of interest are extremely difficult to implement. Access issues, calculating response rates from Internet-based surveys, and comparing outcome variables across entities present challenges. In addition, the need to receive approval from multiple institutional review boards presents nearly insurmountable barriers. Even so, this study was able to achieve a level of rigor and credibility due to several design strengths.

This study was based on a random sample, which enables generalizability of the findings to larger populations of nursing organizations. In addition, the random sample ensured that participants were not just well-run organizations—typical of those that consistently volunteer for research studies—but also hospitals that may not otherwise have been able to participate. Inclusion of multiple hospitals with diverse characteristics and representing varied geographic regions strengthened the study and its generalizability.

The response rate of 38% could be viewed as a weakness, given Kramer's[16] work that indicates the need for a 40% response to draw adequate conclusions. The sample size is another example of a potential weakness. A priori power analysis indicated the need for a sample size of 66 units to detect a moderate effect size, with a final sample size in this study of 54. However, significant findings indicate that adequate power was achieved with this smaller sample. This is likely indicative of a large effect size, giving the study findings even more clinical importance.

Additional research is needed to determine the kinds of informal and formal systems that generate the greatest return. Future studies using the HGD instrument should include specific definitions of each element. For example, what is a formal system for involvement? What constitutes involvement in planning for staffing? Although one could argue that perception is reality for direct care nurses, this does constitute a limitation of this study in the opinions of the authors.

Implications for Practice

This study has broad implications for nurses and their leaders regarding the benefits of involving nurses in decisions about patient care, work methods, and the organizational environment. The greatest benefit is gained when organizational leadership demonstrates that it values and solicits the opinions of nurses about issues of concern. Giving nurses a voice can generate a range of beneficial nurse and patient outcomes and results in minimal organizational cost.

Overall, involving nurses in decision making enhances nurse retention and reduces the rate of adverse patient events. Involving nurses in planning for

staffing has an impact on nurse retention and affects patient satisfaction with nursing care. Informal structures and functionality of systems for involvement had an effect on infections and nurse retention.

It does not appear from these data that formal structures are necessary to reap the benefits of decisional involvement. Formal structures and functionality of involvement were not associated with any nurse- or patient-level outcomes. Formal and informal feedback systems had no impact on nurse or patient outcomes. It seems clear that widespread organizational efforts are the most effective in reaping the benefits of involvement.

Educating administrators in both nursing organizations and the executive suite should focus on giving nurses a voice, whether systems are formal or informal. Widespread recognition of the return on investment of nurse involvement can strengthen commitment to ensure nurses' opinions are solicited, considered, and applied to practice, work methods, and the work environment.

This study provides strong evidence for the rewards of involving nurses in decisions about patient care, work methods, and organizational environment. Involving nurses in decisions has an impact on nurse satisfaction and retention, patient satisfaction, and the avoidance of adverse events. The most significant benefits are related to organizational efforts to solicit and value the opinions of nursing. Those organizations that have a focus on nurse retention will find that involving nurses in decisions is an inexpensive and effective way to do so. These systems need not be expensive or complex to reap the benefits of nurse involvement.

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ATTACHMENT D: Listing of Presentations

Conference / Presentation	Conference Date	Submission deadline	Submitted by	Presenter	Podium or Poster
American Organization for Nurse Executives - AONE **Indianapolis**	Apr-10			J. Scholz; F. Ricker; C. Sanders	Podium
Webinars - 2 **Denver**	Feb-11			Janet Houser	Podium
Sigma Theta Tau International - **Cancun**	Jun-11		Janet Houser	Janet Houser Linda Stroup	Podium
Magnet Conference (American Nurses Credentialing Center) **Washington D.C.**	10/3-5/2011		Janet Houser	Colleen Casper	Podium
International Nursing Administrative Research Conference - **Denver**	10/12-15/11	Apr-11	Janet Houser	Janet Houser	Podium
Colorado Nurses Association Denver Colorado	Oct-11			Janet Houser	Podium
Sigma Theta Tau International - **Grapevine, Texas**	Nov-11	Closed	Janet Houser		Podium
ANA Nursing Quality Conference - **Las Vegas**	January 25-27, 2012		Fran Ricker	Janet & Fran	Podium
23 Rocky Mountain Regional Research Symposium **Aurora, Colorado**	March 1 & 2, 2012	Monday, August 29, 2011	Fran Ricker		Podium
Sigma Theta Tau **Alamosa, Colorado**	May 6, 2012			Colleen Casper	Podium
Children's Hospital Colorado Grand Rounds	May-12			Carolyn Sanders	