

Impact of hospital restructuring and downsizing on nursing and patient outcomes

Report submitted to the Florida Center for Nursing*
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*Portions of this report are derived from a larger international review being prepared for publication.

Research proposal submitted to the Florida Center for Nursing

Project title: A review of the literature regarding the impact of hospital restructuring on nursing and patient outcomes in the United States over the past decade

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Relevance to nursing workforce issues: Understanding the drivers and results of decreased nursing staffing can yield useful information for proposing strategies to address nursing workforce issues.

Scope of work: This project will summarize and compare hospital restructuring and downsizing activities in the United States over the past decade, and critically review the research regarding the impact of these activities on nursing staff and patient outcomes. A review of the literature from 1992 to the present will provide the context for a comparison, synthesis and discussion of issues. The survey will be conducted through an exhaustive search of nursing, medical, health services, and economic publications. Research articles will be reviewed, synthesized, and nursing workforce implications discussed. Policy and research recommendations will be made based on study findings.

Work product: A formal report will be submitted to the Florida Center for Nursing no later than June 30, 2002.

Estimation of time involved:

Database searches and article retrieval: 30 hours

Review of articles: 50 hours

Synthesis of information 20 hours

Writing formal report: 20 hours

Total 120 hours

We request our salary dollar equivalent for 60 hours each. J. Byers would like to earmark the money for conference travel. L. Unruh would like to earmark the money for travel and/or research assistant support.

ABSTRACT

This report for the Florida Center for Nursing summarizes hospital restructuring and downsizing activities in the United States, and the impact of these activities on the nursing staff and patient outcomes. An integrated research review of the United States literature from 1992 to the present provides the context for synthesis of issues, and a discussion regarding possible future directions. The review was conducted through an exhaustive search of nursing, medical, health services, and economic publications. The review of the literature reveals that the health care system changes contributing to hospital restructuring all have similar reported drivers. Financial pressures, either through reduced government funding or increased competition, were significant forces leading to hospital facility restructuring and workforce downsizing. Nursing staff reductions and skill-mix changes were a common response, and the impact on nursing staff and patient care was typically negative. Research indicates a link between inadequate staffing and job dissatisfaction, nursing stress, poor performance, and poor patient outcomes. In addition, downsizing has been implicated in hospital problems with retention and recruitment and with nurses leaving or choosing not to go into nursing. Since studies indicate that downsizing and skill mix changes have not led to positive changes, future similar actions should be preceded by an analysis of its potential impact on quality, satisfaction, and cost, and other ways of improving hospitals' financial situation should be explored. Future leadership, research and policy implications, including priorities for the Florida Center for Nursing are discussed.

INTRODUCTION

Downsizing has been a major component of hospital restructuring in the United States (U.S.) since the early 1990s. Hospitals have reduced in-patient beds, eliminated services, shut down units, or closed entirely. Accompanying these physical curtailments have been reductions in personnel, including nursing staff, and reductions in the skill mix of nursing staff (Aiken, Clarke & Sloan, 2000; Leatt, Baker, Halverson, & Aird, 1997; Lee & Alexander, 1999; Shinduhl-Rothschild, Berry & Long-Middleton, 1996; Sochalski, Aiken & Fagin, 1997; Unruh, 2001; Wunderlich, Sloan & Davis, 1996). In the U.S., downsizing is seen as a consequence of increased competition and uncertainty in the economic situation of hospitals. Reducing capacity and personnel is a common way to reduce organizational costs and thus be more competitive (Lee & Alexander, 1999; Leatt, et al., 1997).

Of major importance is the impact of restructuring and downsizing on the personnel in hospitals, on the quality of care delivered to patients, and, in the final analysis, on the health outcomes of patients themselves. Since downsizing is a fairly recent phenomenon, these issues have only begun to be explored. What do nursing staff, hospital managers and health policy experts say about the results of downsizing? What recommendations do they make for the future?

The impact of nursing staff downsizing on the work environment and on nurses' nursing care performance has been investigated (Aiken, et al, 2001; Ingersoll et al, 2001; Norrish & Rundall, 2001; Sochalski, 2001). However, the majority of studies rely on nurse self report.

Researchers also have examined the relationship between nurse staffing and patient outcomes, (Aiken, Clarke, & Sloane, 2000; Barry-Walker, 2000; Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2001; Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2002). Many articles explore ways to improve staffing and patient outcomes while managing the financial and utilization pressures of restructuring (Burke, 2001; Ho, Chan & Kidwell, 1997; Leatt et al, 1997; Norrish & Rundall, 2001).

This report reviews the literature on hospital restructuring in the United States from 1992 to the present. Because of the broad scope of restructuring, this investigation focuses primarily on hospital downsizing, as it directly relates to nursing staffing. The study compares and synthesizes pressures propelling restructuring, the extent and actions of downsizing, the effect of downsizing and skill mix changes on the workforce, performance, and patient outcomes, and recommendations for hospital management, research and policy.

DEFINITIONS AND SCOPE OF REVIEW

Many terms have been used for the organizational and operational changes undertaken by hospitals in the past decade. The most common ones are restructuring, reengineering, redesign, and downsizing. Restructuring is the broadest term and is sometimes used as a catch-all for all types of processes. Strictly speaking, it refers to a strategic refocusing of the business. Reengineering and redesign are often used interchangeably, and tend to refer to process redesign. Downsizing is the reduction in physical facility and workforce. These changes frequently are undertaken simultaneously, with actions overlapping, and for this reason the terms often become synonymous with each other. For example, redesign of the nursing process may include downsizing of nursing staff. Downsizing of various staff may or may not be accompanied by a reengineering process that changes the nature of the work process. In fact, rarely is downsizing undertaken in isolation from redesign or restructuring (Leatt, et al., 1997).

In this review, the focus is on downsizing and skill mix changes, whether or not it has been accompanied by reengineering or redesign, or is a part of strategic restructuring. However, because of the broad scope and complexity of assessing redesign or restructuring, in cases where downsizing or skill mix changes were part of other processes, the analysis focused only on the downsizing/ skill mix changes and

their results. It should be kept in mind that the results of downsizing and skill mix changes found in the literature are seldom completely independent from other processes being undertaken.

In the downsizing of personnel, the cutbacks can be across-the board in equal proportions, or targeted toward only certain personnel, so that the cuts are not equal in proportion (skill mix changes). Choices as to the type of personnel reductions made will be related to other redesign or restructuring aims and activities. Therefore, in this review, both nursing staff and skill-mix reductions are considered.

METHODS

The review was accomplished through a search of United States literature from 1992 to the present. English-language research, trade, and consumer journals from the following medical, nursing, health services management, and economic international databases were searched: Academic Search Elite, Alt-Health Watch, CINAHL, EconLit, Health Source Plus, Medline, and Social Sciences Citation Index.

Search key words were: hospital restructuring, hospital redesign, hospital reengineering, hospital downsizing, nurse staffing, patient outcomes, nurse staffing and patient outcomes, hospital working conditions, nurse staffing and performance, nursing working conditions. Also, hospital restructuring, hospital redesign, hospital reengineering and hospital downsizing were combined with patient outcomes, working conditions, nurse staffing and performance.

Articles were selected if they focused on or spoke to causes, actions, or consequences of the downsizing or skill mix changes, or if they discussed the implications or policies related to downsizing/ skill mix changes. In addition, articles examining the relationship between nurse staffing and working conditions, nurse staffing and performance, and nurse staffing and patient outcomes were included. Research articles comprised the overwhelming number of articles chosen, but a few non-research articles were included if they significantly added to the information available.

SUMMARY AND SYNTHESIS OF THE LITERATURE

While the literature revealed research results similar enough to allow a qualitative comparison, designs, measures, and methods differed too much to enable quantitative comparisons. In addition, few of the studies quantified the amount of change experienced. Review of the literature yielded 27 relevant studies and 1 overview article on nurse staffing and patient outcomes evaluation initiatives. The majority of these focused on the impact of downsizing on patient outcomes (14), followed by impact on the workforce (11), impact on performance (6), hospital utilization and downsizing (5), and contributory health system changes (4). Some studies are counted more than once because they addressed several of these issues.

Table 1 summarizes research regarding causative factors, and resultant downsizing and skill mix changes. Decreased reimbursement from governmental agencies, insurance companies and managed care companies was the primary trigger for restructuring, downsizing and skill mix change activities. Declines in hospital volumes due to the influence of managed care, and the reduction of Medicare payments due to the Balanced Budget Act of 1997, were cited as causing layoffs or cost-cutting measures. Current efforts at reducing U. S. health care expenditures include the institution of price controls [Resource Based Relative Value Scales and Diagnostic Related Groups (RBRVS, DRGs)], global budgets (capitation), and influencing physicians' use of resources (DRGs, capitation, utilization review) (Henderson, 2002). Virtually all studies reported downsizing or skill mix changes with a decline in the number of registered nurses (RN) compared to the number of unlicensed assistive personnel as a key restructuring activity. Attrition was the most commonly reported downsizing method. Given the simultaneous drop in patient volumes, the issue is whether Registered Nurse (RN) workload increased (RN-patient or other ratios fell). Evidence from these studies is mixed.

Table 2 describes the research regarding the impact of downsizing and skill mix changes on the work environment and performance of nursing staff. Most studies surveyed registered nurses about their perceptions. There was an overarching concern across all studies about nurses' inability to provide high quality patient care with current staffing. Consistent themes of the nurse respondents also included feelings of stress, burnout, guilt, fatigue as well as decreased work satisfaction and morale.

The impact of downsizing and skill mix changes on patient outcomes are summarized in table 3. These studies primarily evaluated objective patient outcome data, but also included nurses' self report in some instances. The nurses' perceptions were similar to those found in the studies reported in table 2. There was a consistent concern of nurse respondents regarding the negative impact of restructuring on quality of care and patient outcomes. The vast majority of studies directly investigating changes in registered nurse ratios and skill mix found that decreased registered nurses negatively affected patient outcomes and vice versa. A variety of outcomes were evaluated, including mortality, medication errors, decubiti, thrombosis, patient complaints, falls, nosocomial infections, pulmonary compromise and intravenous therapy-related complications. Blegen and colleagues (Blegen, Goode & Reed, 1998; Blegen & Vaughn, 1998) found that higher proportions of RNs decreased adverse events, but only up to an 85-87.5% RN proportion. Based on the reported studies, there is support for maintaining a high proportion of RNs in the skill mix, but not up to 100%. Needleman et al. (2001, 2002) demonstrated that increased registered nurse care hours and proportion of care decreased the risk of several adverse outcomes in both medical and surgical patients. Considering the impact of registered nurse staffing on patient outcomes, the available data do not support downsizing and increasing non-licensed care providers as effective restructuring strategies.

Only one study (Aiken, Smith & Lake, 1994) investigated both nurse provider skill mix and ratio in combination with organizational factors. This study compared magnet hospitals to control hospitals. The

investigators found that nurse to patient ratios and skill mix did not influence mortality, but that organizational factors including nursing status, autonomy and control decreased mortality. There is still much research needed on the influence of organizational factors on both staff and patients.

It should be noted that the majority of downsizing and skill mix research on nurse outcomes is anecdotal, that is, based on surveys and interviews of nurses. While these are valuable studies, evaluation or retrospective studies directly assessing the downsizing changes and impacts are rare. Some studies (table 2) were merely descriptive reports using relatively subjective data. However, some studies used strong qualitative or quantitative methods of analyses. Studies on patient outcomes in general, were more rigorous (table 3). For the limitations of particular studies, see the columns on “Research Design and Methods” and “Comments” in tables 1-3.

ADMINISTRATIVE RECOMMENDATIONS

Downsizing is a dominant restructuring strategy. To date, the goal of cost reduction has been a more dominant driver of restructuring, including downsizing, than the goal of quality improvement (Saltman, 1998; Walston & Bogue, 1999). Despite this focus, a study by Walston and Bogue (1999) found that hospitals that restructured did not improve their overall cost position any more than hospitals that did not participate in restructuring.

The majority of available research on downsizing (Tables 2 and 3) shows a strong trend towards negative impact of these practices on nursing staff and patients. Only one study reported a positive nursing staff effect of improved teamwork (Urden & Walston, 2001). However, in this study, Chief Executive Officers were reporting on nursing teamwork, not nurses. Registered nurses might have responded differently.

Downsizing negatively impacts the work environment, leading to increased nurse workload and stress. Since nurses spend more time with patients than any other health care provider, they have a large impact on patient outcomes and patient satisfaction. A tired, stressed and dissatisfied nurse cannot do a good job, resulting in a negative spiral. Studies of the impact of downsizing and increased patient care loads on patient outcomes are mixed, but the majority of the studies found an association between increased patient care loads and increased patient complications and death. However, it is difficult to interpret research results, as downsizing is frequently not performed in isolation. Other aspects of restructuring as well as temporal events become confounding variables. Despite this consideration, there is clear evidence that downsizing, with or without skill mix changes, has a negative impact on patients, and may not achieve desired cost reductions.

There are even more far-reaching consequences to downsizing. Due to its negative effect on the workplace, it reduces recruitment and retention, which increases costs for replacing the nurses. In the current registered nurse shortage, it may take many months to recruit a nurse, followed by the costs of orientation and specialty training.

The negative effect of downsizing on the work environment has even recently been implicated as one of the causes of the current nursing shortage. Testimony on the nursing shortage by the American Nurses Association before the congressional Committee on Education and Workforce (Foley, 2001) attributes the decrease in the number of people working in the nursing profession to several factors, one of which is the deterioration in the work environment. Foley states that the shortage will remain or worsen if improvements in the work environment are not made: “As long as nurses remain disheartened by their work environments, as long as they discourage their friends and families from entering the profession, the root cause of this shortage will remain unaddressed” (addendum to testimony). The Nurse Alliance, a nursing union, also stated before Congress that poor working conditions are the main reason for the

nursing shortage (Webster, 2002). In the March 2000 findings from the National Sample Survey of Registered Nurses (HRSA BHP, 2000), staff nurses in nursing homes and hospitals were much more dissatisfied with their jobs than those in other settings and roles. Approximately 1/3 of survey respondents reported job dissatisfaction in these settings. Some work environment-related solutions for the nursing shortage in a report by the Robert Wood Foundation were to decrease individual workloads, provide support staff, empower nurse managers to be able to fully support their units, and listen and act on staff nurses' concerns about their work environment (Kimball & O'Neil, 2002).

The negative ramifications of downsizing should be considered whenever it is contemplated. One way to guard against a hasty decision to downsize is to give nurses a voice in the decision. In order for nurses to be able to relate the impact of proposed downsizing on nursing satisfaction, patient care, and patient outcomes, and to provide alternative proposals, the Chief Nursing Officer (CNO) of an organization must be at the senior leadership table at an equal rank to the other Officers. The CNO can also provide research-based information regarding the impact of downsizing on patient safety, outcomes, and nursing recruitment and retention.

Proper planning may prevent downsizing and skill mix changes. Development of new services to increase revenues, elimination of non-value added services, cost reduction strategies including streamlining patient care processes, and initiatives to provide best care on the best evidence are potential alternatives. Current health care business challenges provide a wonderful opportunity for health care leaders in conjunction with their staff and patients to create, implement and evaluate new, innovative patient care delivery models.

Downsizing and skill mix changes should be a last resort. If they are considered, they require necessary leadership, planning, integration, and coordination in order to achieve desired objectives. In response to resource challenges, health care leaders need to employ lessons learned in other industries and

should prioritize best practices over their corporate culture. If absolutely necessary, staff layoffs and/or downsizing by attrition should be based on the latest scientific evidence regarding the impact of particular nursing staff categories on patient outcomes (Fottler, Smith & Muller, 1986). Finally, potential impact on quality, satisfaction and cost in the short and long term should be evaluated prior to implementation.

RESEARCH RECOMMENDATIONS

The review of the literature indicates that downsizing and skill mix changes in the past decade have not always resulted in anticipated outcomes (Aiken, Clark, & Sloane, 2000; Arndt & Bigelow, 1998). Many initiatives were not based on existing evidence to support best practices and were evaluated very narrowly, focusing primarily on cost reduction, thus not contributing to a meaningful body of evidence (Urden & Walston, 2001; White, 1997; Walston & Bogue, 1999). If undertaken in the future, institutions engaging in downsizing and skill mix changes should make use of this prior experience, and should carry out evaluation research of the impact on both cost and quality.

This review demonstrates that hospital downsizing reduced aspects of nurse staffing to the detriment of patients. In particular, the average skill level of the nursing staff was reported to have declined over time as hospital administrators substituted less skilled workers such as nursing assistants for more skilled nurses such as Registered Nurses (Tables 1 and 2). The negative impact on patient care was documented in the majority of studies (Table 3). However, the cost of increased staff turnover, stress-related illness and errors, and patient adverse events, has yet to be studied, and must be added into any equation evaluating the cost savings of these approaches. Patient safety must be paramount in all downsizing and skill mix evaluation.

In addition, the impact of nursing staff reductions on patient outcomes has been accentuated by the shift of care to the ambulatory setting, resulting in increased acuity of in-patients. It is important that future studies assess the patient health setting, patient acuity, as well as staffing patterns, in order to assess the

separate and combined effects of setting, acuity and staffing on nurse and patient outcomes, and to determine causality.

There are eight recent nationally funded studies in the United States investigating the impact of nursing patient ratios on nurse sensitive adverse events (Buerhaus & Needleman, 2000). The results of these studies, including the first one which was recently published (Needleman et al., 2002) will improve the body of evidence to drive policy regarding optimal nurse patient ratios and to analyze the impact of planned downsizing efforts. Studies reported to date are included here.

The increased complexity and specialization of health care today calls for a better educated nursing work force, not a less educated one (Sochalski, Aiken & Fagin, 1997). Not only is it important to have adequate numbers and skill mix of RNs to nursing staff, but the educational preparation of RNs may also matter. Since many registered nurses are educated at the associate degree, not baccalaureate level, it may be inappropriate to aggregate all RNs into one category for analysis. Whether an associate degree prepared RN is capable of managing the current intricacies of patient care and supervision is a subject of many debates by nurse leaders.

In addition, experience and professional certification of nurses may influence patient outcomes. Certainly many organizations, including magnet facilities, are embracing clinical ladders and professional practice models as strategies to promote professional growth and retention of RNs. More research is needed to evaluate the influence of RN certification (Cary, 2000, American Nurse, 2000), education and experience on patient outcomes.

Health care leaders must make a commitment to building a valid scientific body of evidence to support changes in organizational structure and staffing and to drive public policy (White, 1997). The goal is to design research studies that allow for apples to apples comparisons locally, statewide, and nationally regarding the success of restructuring initiatives. Health services researchers and health care database

managers must endeavor to have consistently defined variables and data management techniques to facilitate valid comparisons (Anderson, 1997).

Although the review of literature demonstrates that some research is available that evaluates health care downsizing, most studies are based on survey data, and they lack consistent measures across studies (Urden & Walston, 2001). Retrospective analyses are weakened due to limitations of available data sets. Many studies only evaluated the impact of downsizing changes for a six month period; longitudinal studies should be performed for a minimum of 18 months following the downsizing changes. Further, determining causality in downsizing research is difficult due to numerous operational and structural changes occurring all at once, resulting in a “big black box” intervention. Changes in the patient population, such as increased acuity, must also be considered.

Future downsizing and restructuring research must be more rigorous and comprehensive.

Although not all inclusive, potential research questions to consider are:

- Does downsizing involvement buffer nursing staff and physician stress?
- Does organizational culture and/or context influence downsizing outcomes?
- Which downsizing approach is most successful in achieving quality, customer service, and cost?
- What are the short and long term effects of downsizing on quality, customer service, and cost?
- What is the relationship between perceived risks to patient safety by nurses and actual events?
- What are the collective cost outcomes of downsizing when staff turnover, staff absences, staff illnesses, adverse events, and lawsuits are included in the equation?
- What is the influence of hospital restructuring and downsizing on nursing career decisions and hospital recruitment?
- What is the influence of education, experience, and certification of Registered Nurses on patient outcomes?

- What is the influence of local, state, national and international health care policy on downsizing, skill mix and other patient care delivery changes?

POLICY RECOMMENDATIONS

National

Nursing as a profession has the opportunity to gain visibility in terms of its positive influence on patient outcomes through dissemination of current staffing and nurse sensitive patient outcomes research findings once the studies are complete (Buerhaus & Needleman, 2000). In light of the current and future nursing shortage, it is imperative that nurse leaders spread the message of the positive influence of nursing on patients' and families' lives through various media to multiple audiences, in order to recruit for the profession. The negative impact of downsizing and skill mix changes on the availability of professional nurses to provide care must be communicated as well. These messages can increase the public's understanding of the importance of nursing to their collective health.

California legislators have weighed in on their concerns regarding downsizing by mandating both minimum staffing ratios and the use of patient classification systems in order to ensure "safe" patient care (Buerhaus & Needleman, 2000; Spetz, 2001). Although not yet implemented, this has enormous policy implications. Spetz (2001) anticipates that implementing the minimum standards will increase registered nurse salary expenditures by 4.6-30.7%. Minimum staff by type of unit is over simplistic. Patients on a given unit vary in acuity from hour to hour, and staffing should be adjusted accordingly. There is a concern that even when patient acuity warrants staffing beyond the minimum standard, that it will not be provided (Spetz, 2001).

Unfortunately, the "perfect" patient classification system does not exist. Efforts to measure both patient acuity and nursing needs in order to calculate necessary nursing "work" is complex, and in many

cases very time consuming. Drivers of staffing and skill mix should include acuity, nursing needs and quality goals (Hughes, 1999). The commonly used Case Mix Index is a retrospective measure, and does not accurately reflect nursing care needs. Accurately measuring necessary nursing work and optimal staffing must be a high health care policy and research priority for the near future.

Supportive organizational culture, nurse autonomy and control over practice setting, and positive physician relationships, such as the environment found at magnet hospitals, have all been demonstrated to decrease hospital mortality (Aiken & Sochalski, 1997; Aiken, Smith & Lake, 1994; Burke, 2001). Despite a growing body of evidence in this regard, few efforts have been made at establishing and evaluating similar supportive work environments. It is time to consider alternatives to downsizing and skill mix changes in order to provide high quality, efficient patient care.

Health care policy makers, and more specifically RNs, need to have a stronger voice regarding the determinants of patient safety and patient care quality. Health care providers such as nurses need to be actively involved in educating legislators and their aides regarding the potential implications of proposed legislation that impacts health care. Conversely, legislators should actively solicit input and consider hiring a RN to be their advisor on health care issues. Registered Nurses are also excellent political candidates for office due to their strong communication skills and knowledge of health and social issues facing our country at the local, state, and national level. Considering our numbers, RNs are very underrepresented in political office and political activism.

Proposed legislation at the federal, state and local level such as mandated staffing ratios should include a formal, consistent evaluation requirement and a time window for reconsideration of the bill. In this fashion, if a legislated change was not effective, the bill could be rescinded and new alternatives considered.

Nursing Organizations and Unions

Professional nursing organizations must take a national and state leadership role in promoting Registered Nurse political activism and patient care advocacy. Examples of influential organizations include the American Nurses Association Political Action Committee, Sigma Theta Tau, Florida Nurses Association, specialty nursing organizations such as the American Organization of Nurse Executives, and the Nursing Organizations Alliance. The largest historical barriers to nurses' influence on health care policy are the lack of a powerful collective voice and a lack of policy activism of many nurses. The first step in overcoming these barriers is to get more RNs to join their professional organizations. These organizations' strategic plan and resource allocation should emphasize commitment towards improving nurses' work environment and patient care. Professional nursing organizations, alone or collectively should support lobbying efforts regarding nursing and health care issues at the state and national level. Organization members must be educated regarding their potential influence on patient care policy and challenged to become involved. Professional organizations as well as individual nurses should financially support political candidates that support nursing and quality patient care.

Nurses' unions are also becoming important players in the political arena. Recently, as working conditions in hospitals have deteriorated, unions have stepped up organizing of nurses around demands for better staffing and working conditions, as well as higher wages. The California Nurses Association has been active in minimum staffing legislation in that state. The Federation of Nurses and Health Professionals--American Federation of Teachers (FNHP--AFT) and Service Employees International Union (SEIU) have conducted surveys and supported members concerns over staffing. FNHP—AFT has been politically active in nursing shortage issues in New York State. SEIU has participated in the California minimum staffing legislation. All work toward involving their members in political campaigns over workplace issues, especially to improve staffing and reduce mandatory overtime.

So far, professional organizations and unions have conducted political organizing efforts in isolation from one another. It is even the case that, frequently, one professional organization has organized separately from another, and likewise with unions. Nursing's influence on future political campaigns would be much aided if organizations and unions could identify areas where there is a common ground regarding nursing and work place issues, strategies and goals, to whatever extent possible. The larger and more united the voice for nursing workplace issues and health care policy, the more likely nurses will be heard and important changes made.

RECOMMENDATIONS TO THE FLORIDA CENTER FOR NURSING

In light of this review of literature on hospital downsizing and its impact on nurses and patients, the Florida Center for Nursing may want to consider funding investigations that examine:

- the financial constraints of hospitals and nursing homes that pressure management to seek downsizing solutions;
- an assessment of the adequacy of government and private reimbursement for hospitals and nursing home services;
- the current supply and demand for nurses in Florida;
- the current hospital and nursing home work environments, their relationship to the supply of nurses in those industries, what is currently being done to improve problems, and what some other solutions could be;
- the licensed nursing staff-to-patient ratios and skill mix in hospitals and nursing homes and their adequacy;
- the impact of registered nurse care on patient outcomes in Florida hospitals;
- retention and recruitment problems, what is currently being done about them, which strategies are most effective, and what else could be explored;

- innovative ways to redesign hospital nursing care (e.g. nursing practice models; technology) so that staff nurses are freed up from administrative and non-nursing tasks and allowed to concentrate on direct patient care;
- whether Florida's ANCC Magnet facilities have better recruitment, retention and staffing outcomes than other facilities (this should be examined through a quantitative analysis), and if so, create and possibly fund strategies to promote magnet certifications in hospitals and nursing homes across the state;
- ways to give nurses a greater voice in health-care delivery decision-making, both at the institutional and governmental policy level.

For many of these areas of investigation, sufficient data may not exist. Therefore, the first step should be to prioritize some areas of research, identify the data needs, and assess ways to procure the data. In some cases, it may be possible to acquire data through voluntary surveys. In other cases, mandated reporting may be necessary. The Florida Center for Nursing should work in collaboration with the Florida Board of Nursing to create an ongoing database of demographic and work setting characteristics of registered nurses across the state. The Florida Center for Nursing may need to sponsor state legislation for data reporting, as exists in other states.

CONCLUSION

Review of the literature on hospital downsizing and skill mix changes demonstrate that these practices have mostly negative outcomes for patients and nursing staff. In light of the current nursing shortage, health care leaders and policy makers are challenged to create innovative, efficient models of health care delivery and to more formally research the outcomes on patients and staff. Nurses need to become more proactive in addressing work place issues and health care policy at the local, state, national

and international levels. The Florida Center for Nursing stands well positioned to identify some key areas of research and data needs related to nurse staffing, play an instrumental role in the collection of necessary data, fund important research essential to understanding the current nursing shortage, and arrive at innovative solutions to the nursing shortage and nursing workforce issues.

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Table 1 Health Care System Changes Contributing to Hospital Downsizing, Utilization Patterns and Downsizing Actions

Citation	Research Design and Method	Health Care System Change	Utilization Patterns and Downsizing Actions	Comments
Aiken, Clarke and Sloane 2000	Surveys of CEOs at 646 hospitals nationwide in 1996, and of 2,000 nurses in 22 hospitals nationwide in 1998. American Hospital Association data on staffing, and HCFA data on patient deaths. Descriptive results.	Not examined.	57% of the hospitals reengineered in the past 5 years. Of those, 90% reduced personnel, 25% laid off RNs, 50% lost RNs through attrition, more than 50% laid off managers, 70% lost managers through attrition, and 70% reduced skill mix. RN/census increased through the 1990s, but intensity of care increased even more. LPNs declined.	28% response rate from CEOs (646 of 2,306). Response rate of RNs not reported.
Brewer and Frazier 1998	Survey of 27 hospitals and 180 units in New York state. Descriptive and Frazier ANOVA analyses.	Managed care influence was not significantly related to nurse staffing.	Not examined.	79% response rate for hospitals and 87% response rate for units.
Sochalski, Aiken and Fagin 1997	Description of the extent and nature of hospital restructuring in the U.S., Canada and Western Europe	Aggressive hospital cost control policies have been pursued.	Hospital admission rates and LOS fell 1980-1994, producing a 34% drop in patient days. Outpatient services increased. RNs and RN/patient ratio increased from 1984 to 1994.	

Shindul-Rothschild 1994	Qualitative study using focus groups and interviews of unit chairpersons of the State Nurses Association and of nursing administrators in Massachusetts.	Nurses felt the decline in hospital volume was due in part to failure to secure managed care contracts and to pressure from managed care to discharge patients rapidly. Layoffs were blamed on pressure from managed care.	Nurses noted a marked decrease in patient census. Nurses reported that hospitals replaced nurses with unlicensed assistive personnel or with float pool or per diem RNs.	
Urden and Walston 2001	Survey of 269 hospital CEOs nationwide where reengineering had been undertaken 1997-1999. Description of outcomes of restructuring and reengineering.	Layoffs may have been in response to Balanced Budget Act of 1997.	The most common activity was downsizing by attrition. 22% of personnel were laid off in 1998 and 20% in 1999. Heaviest downsizing was in 1998. Management also was reduced.	26% response rate (269 out of 1,014). Hospitals in sample were acute-care, with 100 or more beds.
Young and	Survey of VPs in 31	Not examined.	11 (35%) of the hospitals downsized	65% response rate

Brown 1998	North Carolina hospitals with average inpatient census above 100. Description of results of survey.	during the past 3 years. 73% of those closed units. Methods included attrition, relocation, early retirement, enhanced severance pay, a change in skill mix, and layoffs. In the 6 sites that provided data on staffing, RN staff decreased from 2 to 29%, and increased 16% in one. LPNs fell 1 to 80%. Nursing assistants increased 35%.	(31 out of 48 hospitals sent the questionnaire). One or more hospitals from each of the six large cities was included. Respondent sample representative of larger sample. sampling
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Table 2. Impact of Hospital Downsizing on Employment, Workload, and Performance of Nursing Staff

Citation	Research Design and Method	Impact on Employment, Workload, and Mental and Physical Health	Impact on Performance (Nursing Care)	Comments
Aiken, Clarke and Sloane 2000	Surveys of CEOs at 646 hospitals nationwide in 1996, and of 2,000 nurses in 22 hospitals nationwide in 1998. American Hospital Association data on staffing, and HCFA data on patient deaths. Descriptive results.	Compared to a 1986 study of 18 of the 22 hospitals in the nursing survey there was erosion in the nursing practice environment.	The percent of nurses who felt that support services were adequate to give them time with their patients and who believed that there were enough RNs to provide quality patient care declined by nearly one-half. Those who felt there were enough staff to get the work done went from 51 to 46.%	28% response rate from CEOs (646 of 2,306). Response rate of RNs not reported.
Aiken, et al. 2001	Survey of nurses from Canada, Germany, Scotland, U.K., and U.S. in acute-care hospitals 1998-1999. 43,329 surveyed in U.S. Descriptive part reported.	83% of U.S. nurses reported increased patient load. 41% were dissatisfied with their job, 43% had high burnout, 23% planned to leave job in the next year. 29 to 41% felt that workforce management was good.	Only 34% of U.S. nurses felt that staffing was adequate for high-quality care. Only 33% felt that there were enough nurses to get the work done. 43% felt that support services were adequate.	Response rates were from 42 to 53%.

Barry-Walker 2000	Longitudinal surveys of nursing and hospital staff and reports of patient adverse events in 3 medical units at a hospital. MANOVA, ANOVA, and qualitative analyses were used.	RNs on the unit with the greatest restructuring change had significantly lower levels of satisfaction and morale than RNs in the other units. RNs on this unit also had lower satisfaction than other hospital workers on this unit. Nurses spoke of frustration and bitterness.	Not examined.	64 RNs and 61 others participated. (response rates were 82% to 71% for RNs, and 80% to 65% for others). 5 measurement periods were used for the surveys.
Davidson, et al. 1997	Longitudinal surveys of 736 hospital nurses in one hospital. Descriptive and multivariate regression analyses used.	A major reason for low satisfaction with the quality of care and with time to do the job was work overload. Predictors of turnover included not enough time to do the job well.	Not examined.	736 out of 1,002 (73%) nurses responded. The second sample dropped to 358.
Ingersoll, et al. 2001	Qualitative study using 12 focus groups drawn from a sample of hospital staff nurses on units involved in redesign.	Nurses experienced disruption in work and confusion about roles and responsibilities. Feelings of loss, anger, despair and abandonment were expressed. Staff morale was lower than ever. Administration was not trusted.	Concern was expressed over a reduction in quality of care.	Nurses reported feeling overly stressed and Abarely able to get through the day.@

Norrish and Rundall 2001	Review of literature on frequently reported restructuring-related changes with respect to RN work roles, workload, and control over work.	Nurses felt a sense of loss and grief over their inability to provide the care they believe patients need. They were very dissatisfied when working in systems that did not provide an opportunity for a meaningful nurse-patient relationship.	Nurses reported spending less time providing care and comfort measures for patients and more time doing indirect care activities and technical care.	Authors discuss the measurement of nursing workload and the importance of assessing changes in patient volume and competency of nursing staff when scheduling.
Pillar and Jarjoura 2001	3 mail surveys of nurses and patients were conducted during hospital-wide restructuring over 1 year.	No obvious differences in autonomy, commitment to patient care or satisfaction with care delivered existed between the units that were re-engineering and those that were not.	Not examined.	One set of random samples was independent and another set was a panel of the same nurses sampled at three intervals.
Shindul-Rothschild 1994	Qualitative study using focus groups and interviews of unit chairpersons of State Nurses Association and of nursing administrators in Massachusetts.	Nurses felt that patient load had increased in addition to increased patient acuity. All nurses expressed anxiety about job security and low morale.	Not examined.	Initial letter went to 111 nurses. Final sample totaled 29 nurses each from a different hospital or health care agency.

Sochalski 2001	Report of first part of international study by International Hospital Outcomes Research Consortium. Article sample is of nurses in Pennsylvania acute-care hospitals. Descriptive analysis of nurse surveys.	Not examined.	A greater number of patients assigned to nurses related to lower quality ratings by nurses. A larger amount of work left undone at the end of the shift was even more strongly associated with lower quality ratings.	See comments in Table 4. The use of bivariate relationships may bias results.
Tillman, et al., 1997	Phenomenologic inquiry used to develop in-depth qualitative descriptions of nurses experiences of working in turbulent hospital environments. Small sample from a large medical center, a medium-sized community hospital, and a small rural hospital.	Analysis of open-ended interviews produced stories of diminishing resources and increased workload due to fewer staff and support services. Nurses felt that nursing administrators were no longer able to be advocates for nursing. Downsizing of other departments increased the workload for nurses.	A common feeling expressed was that of loss of control of nursing practice at a time in which patients have complex needs. Staffing determined the system of nursing care from day-to-day rather than the other way around. Short LOS puts pressure on nurses to get patient care and teaching in.	Attempted to reduce bias due to organizational culture or institutional philosophy by drawing sample from 3 different institutions. Only 9 nurses non-randomly sampled from this.

Unruh 2001	Aggregate changes in hospital nursing staff from 1991-7 in Pennsylvania. Descriptive.	Levels of RNs and LPNs fell. Levels of nursing assistants rose. With adjustment for patient acuity, RN/adjusted patient days of care fell slightly, LPN/adjusted patient days of care fell 23%. RN/nurse increased, but licensed nurse (RNs and LPNs combined)/nurse declined 2%.	Not examined.	Aggregate changes include hospital closings.
Urden and Walston 2001	Survey of 269 hospital CEOs nationwide where reengineering had been undertaken 1997-1999. Description of outcomes of restructuring.	Some morale problems and increased turnover occurred with the layoffs. On the other hand, teamwork and leadership improved.	Not examined.	26% response rate (269 out of 1,014). Hospitals in sample were acute-care, with 100 or more beds.

Table 3. Impact of Hospital Downsizing on Patient Outcomes

Citation	Research Design and Method	Topic	Results/Conclusions	Comments
Aiken, Clarke, and Sloane 2000	Surveys of CEOs at 646 hospitals, 2,000 nurses in 22 hospitals, and data from the AH and HCFA. Bivariate association of nurse staffing with patient mortality.	The study examined restructuring (reductions in managers, personnel, and skill mix, cross-training of personnel) and its impact on patient outcomes.	Nurse to patient staffing ratios were significantly negatively related to patient mortality.	Many other factors may influence the bivariate association cited here.
Aiken, Smith, and Lake 1994	Sample of 39 magnet hospitals matched with 195 control hospitals. Matched-control technique controlled for 17 hospital characteristics variables. ANOVA analysis.	The study compared patient mortality rates across magnet hospitals known to have good nursing care and with control hospitals.	Neither nurse to patient ratios nor skill mix had a significant effect on mortality. Greater nursing status, control and autonomy contribute to lower mortality.	The authors show that actions other than staffing and skill mix contribute to patient outcomes.
Barry-Walker 2000	Longitudinal surveys of nursing staff and reports of patient adverse events in 3 medical units at one hospital. MANOVA, ANOVA, and qualitative analyses used.	Study measured the impact of bed consolidation and population reaggregation on staff, patient, and financial outcomes. Patient variables were falls and medication errors.	Per MANOVA, patient falls and medication errors were not significantly related to nursing hours, costs, average daily census, or percent occupancy of unit-level acute beds.	5 measurement periods were used for the surveys.

<p>Blegen, Goode, and Reed, 1998</p>	<p>Cross-sectional study of 42 inpatient units in an 880-bed university hospital. Multi-phase linear regression analysis used.</p>	<p>Study assessed the relationship between hours of nursing care/patient day and skill mix (proportion of RNs) on the one hand, and adverse patient events on the other hand.</p>	<p>A significant inverse relationship existed between skill mix and medication errors, decubiti, and patient complaints. Rates of adverse events decreased up to a staff mix of 87.5% RNs.</p>	<p>Authors found a nonlinear relationship of skill mix to rates of medication errors. Use of unique patient acuity system may limit generalizability.</p>
<p>Blegen and Vaughn, 1998</p>	<p>Longitudinal study of 39 units in 11 hospitals (members of the Institute for Quality Healthcare) from July 1993 to December 1995. General estimating equations (GEE) multivariate analyses used.</p>	<p>Study assessed the relationship between nurse staffing and adverse patient outcomes inclusive of patient falls, medication errors, and cardiopulmonary arrests.</p>	<p>Higher RN proportions were significantly associated with fewer patient falls and medication errors.</p>	<p>The study found a nonlinear relationship between RN proportion and rates of medication errors.</p>
<p>Buerhaus and Needleman, 2000</p>	<p>Comprehensive overview of current investigative efforts related to nurse staffing and patient outcomes</p>	<p>Examined nursing workforce and patient outcomes studies, and discussed the implications for policy making.</p>	<p>Current studies are limited by complexity of relationship between nurse staffing and patient outcomes, the mediation of other factors, and data and analytic methods.</p>	<p>More research, empirical data, and models are needed to develop reliable measures of quality improvement. Some studies are underway.</p>
<p>Dugan, et al. 1996</p>	<p>Surveys of 293 nurses in a 500-bed hospital were matched with the percentage of occurrences of patient incidents obtained from patient records. Bivariate correlation used.</p>	<p>Related staff stress to medication errors, patient falls and IV errors.</p>	<p>Stress among the nursing staff was fairly strongly related to an increase in medication errors and patient falls. A relationship between stress and IV errors was not evident.</p>	<p>Survey instrument: Stress Continuum Scale (SCS). Factors other than stress that contribute to patient outcomes may have biased the results.</p>

<p>Fridkin, et al., 1996</p>	<p>Case control and cohort studies of surgical ICU patients in a VA medical center. Logistic regression analysis used.</p>	<p>The study examined the role of understaffing as a risk factor in nosocomial infections in patients using central venous catheters.</p>	<p>Understaffing during a period of increased use of TPN led to an increase in nosocomial infections.</p>	<p>Adequate staffing may result in decreased nosocomial infections and a reduction in some costs.</p>
<p>Kovner and Gergen, 1998</p>	<p>Cross-sectional study using a stratified probability sample of patient records from 589 hospitals in 10 states matched with nurse staffing data from AHA. Regression analysis.</p>	<p>The relationship between adverse patient events following surgery and nurse staffing levels was evaluated.</p>	<p>A significant relationship was found between RNs per adjusted patient day and urinary tract infections, pneumonia, and to a lesser degree thrombosis and pulmonary compromise.</p>	<p>Information may be useful to managers and administrators when restructuring clinical workforce.</p>
<p>Lichtig, Knauf and Milholland 1999</p>	<p>Cross-sectional study of California and New York acute-care hospitals (N= 462 and 229 respectively) in 1992 and 1994. Multivariate regression analysis performed.</p>	<p>The study assessed hospital nurse staffing, patient outcomes, and the relationship between the two.</p>	<p>More RNs related to fewer urinary tract infections and pressure ulcers in both states and to post-op infections in California. Nursing hours/NIW related to pressure ulcers in New York in 1992 and California in 1994.</p>	<p>Staffing measures: percent of RNs and nursing hours/nursing intensive weights. Patient outcomes: post-operative infections, pneumonia, pressure ulcers, and urinary tract infections</p>

<p>Needleman, et al., 2001 Needleman et al., 2002</p>	<p>Cross-sectional study using large national data sets (hospital discharge data for 5,075,969 inpatients and 1,104,659 outpatients in 11 states, hospital financial reports and hospital staffing surveys). Multivariate regression modeling and analysis.</p>	<p>Study examined the relationship between nurse staffing and patient outcomes.</p>	<p>A higher proportion of RNs was related to a 3-12% reduction in the rates of five adverse event outcomes (UTI, pneumonia, shock, upper GI bleed, LOS). RN staffing was not associated with death rates. LPN and nurse aide staffing did not affect adverse patient outcomes.</p>	<p>Largest study on nursing staffing and patient outcomes to date. Recommendations for definitions, data collection, data systems, and measuring methodologies.</p>
<p>Proctor, Yarcheski and Oriscello 1996</p>	<p>Survey of 68 hospitalized patients and collection of patient outcome data. Pearson correlations performed between hospital process variables and patient outcomes.</p>	<p>Study asked patients to evaluate the relationship of hospital variables on their outcomes post myocardial infarction at the time of discharge.</p>	<p>Nursing care and hospital environment were significantly positively related to patient outcomes post myocardial infarction.</p>	<p>Instruments: Patient Judgment of Hospital Quality Questionnaire and the Revised Hausman & Hegyvary Outcome Criteria Instrument for Acute Myocardial Infarction.</p>
<p>Sochalski 2001</p>	<p>International Hospital Outcomes Research Consortium study using various data and sampling techniques. Article sample is of nurses in acute-care Pennsylvania hospitals. Descriptive analysis of nurse surveys reported here.</p>	<p>Report of first part of international study of nurse staffing and patient outcomes. The article describes nurses' perceptions of the quality of care and patient adverse events.</p>	<p>Nurses who rated the quality of care on their unit as fair or poor reported higher frequency of medication errors, nosocomial infections, and patient falls with injuries.</p>	<p>Sample obtained by matching survey random sample of licensed nurses to hospitals. Response rate was initially 52%. Of these, 34% indicated they worked in a hospital.</p>

<p>Sochalski, Estabrooks and Humphrey 1999</p>	<p>International, multi-site ongoing study linking primary data from nurse surveys, administrative data on patient outcomes, and hospital data on organizational characteristics.</p>	<p>Report on the progress to date to study the effects of changes in the nursing workforce and practice environment on patient outcomes (mortality rates and failure to rescue rates).</p>	<p>Preliminary work with hospital discharge data in the U.S. and Canada finds strong correlations between failure rates using complications data and rates using prolonged LOS to indicate complications.</p>	<p>The approach of nesting individual nursing surveys into a hospital-level response may be problematic if the individual response rate is highly varied from hospital to hospital.</p>
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