Committing to Care

Labor–Management Cooperation and Hospital Restructuring

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EXECUTIVE SUMMARY

This study focuses on a health care industry in the midst of transition. Although we look specifically at hospitals in the Minneapolis/St. Paul area, this study's findings are pertinent to all health care organizations that seek to provide high-quality, low-cost care in today's rapidly evolving, competitive environment. These increasing competitive pressures are forcing hospitals to respond in various ways — some are closing, some are merging, and others are building integrated delivery networks. A central component of this restructuring for greater cost effectiveness is the development of new staffing and work organization practices. Existing research suggests that changes in hospital work organization will have important consequences for all parties, but the hospital administrators making these important decisions have few theoretical or practical models available to guide them in understanding how different practices will affect the quality of patient care.

This report finds that union labor-management committees improve communication and ease the process of implementing new hospital practices in response to changing market demands.

This report is part of a larger study focusing on two main issues critical to guiding hospitals through the restructuring process. The first issue (explored in this report) is the role that labor-management relations play both in shaping the work practices adopted by hospital administrators and in determining the financial performance of hospitals. The second issue, examined in the report *Sharing Care*, is the affect of changes in nursing work organization on the patient care process and the quality of care.

Through a multivariate analysis of 14 Minneapolis/St. Paul area hospitals over a 10-year period, this report finds that the existence of union labor-management committees improves communication and eases the process of implementing new hospital practices in response to changing market demands. More importantly, labor-management cooperation leads to three critical outcomes: higher registered nurse staffing ratios for patients, higher levels of employee involvement throughout the hospital, and better hospital financial performance. These findings lead to the following recommendations:

- ***Hospitals and unions should form labor-management committees.*** As mentioned above, these committees result in three desirable outcomes — greater organizational flexibility, higher nursing staff levels, and better financial performance. The development of cooperative relations between management and just two occupational groups is correlated with an increase of $26 in income per patient-day (measured as income loss or surplus from hospital operations divided by total patient days). Comprehensive cooperation across all unionized groups is correlated with nearly $80 more in income per patient-

day when compared to hospitals with no cooperative relations with unions. Either way, this is a dramatic economic benefit, since hospital income has ranged from -$147 to $284 per patient-day over the course of the study.

- ***Hospitals and unions should expand employee involvement and participation to all occupational groups***. Wide differences in the level of employee involvement both on the job and on cost-cutting and quality improvement teams reduce potential hospital gains. This report finds that variations in cooperation and involvement levels across occupational groups may constrain a hospital's capacity to develop and implement the new practices that help it compete in an evolving market.

INTRODUCTION

Health care delivery in the United States is undergoing broad and dramatic change. Evolving institutional and financial structures are reshaping the health care delivery system. Growth in managed care is leading hospitals to re-evaluate their cost structures and care processes. New technical systems are increasing management's capacity to standardize and formalize patient care procedures. Hospitals are positioning themselves to compete for patients within particular market niches, resulting in the closing of inpatient units and a new emphasis on specific areas of expertise. In response to these many changes, hospital administrators are striving to develop new work organization practices that meet both cost and quality objectives.

One of the common ways that administrators are reorganizing some hospitals is by changing the skill mix on nursing units.

With competitive pressures increasing, new technologies emerging, and patient characteristics changing, hospitals are being forced to find ways to shift and reshape practices so as to stay vital and competitive. Smoothly accommodating these changes by altering patient care practices in a way that minimizes disruption and improves organizational performance is the difficult task at hand for many hospital administrators.

Much of this competitive pressure can be traced to the growth of managed care and cost-based competition. Hospital managers throughout the United States are searching for new ways to structure nursing care in an effort to cut costs and remain competitive. Unfortunately, little information is available regarding the various effects of workplace changes on organizational outcomes, especially those important to patient care quality. One of the common ways that administrators are reorganizing some hospitals is by changing the skill mix on nursing units by reducing RN staffing and bringing in more lower-skilled employees. Moreover, the division of labor among hospital employees is shifting so that lower-skilled workers are being given broader responsibility for patient care. The logic as espoused by hospital leadership is a desire to match skills to tasks. As one nursing vice president suggested, "Why should an RN feed a patient at $20 an hour while a nurse assistant could do the exact same thing for less than half that?" This rationale, combined with increasing technological sophistication and rising average patient acuity (i.e., severity of patient illnesses), has prompted a shift in hospital work organization practice that focuses RN responsibility on "high–skill" tasks, such as patient assessment or management of care episodes, and delegates more "routine" work responsibilities, such as bathing a patient or taking vital signs, to other nursing unit employees. Supporters of these trends perceive such new practices as improving cost efficiency and overall performance with no adverse effect on quality.

This report focuses on the role of labor-management relations in shaping nursing practices as hospitals respond to changes in a competitive market. In theory, labor unions can be seen as having one of two effects — they can either constrain management by limiting change in work practices, or they can broaden opportunities by providing employees with a voice in the decision-making process, thus improving the quality of decision making and easing the implementation of workplace changes. We find that the latter "adjustment capacity," which results from increased labor participation, is potentially an important resource for hospital administrators as they react to developments in the health care market. Moreover, more extensive cooperation between union leaders and hospital managers leads to widespread direct participation by employees throughout the hospital. This direct participation is critical to improving organizational performance and in enabling hospitals to compete successfully within evolving markets.

Labor participation is potentially an important resource for hospital administrators as they react to developments in the health care market.

Hospital and Union Participation in the Research Project

This study was undertaken in close cooperation with members of the Metropolitan Hospitals' Labor-Management Council (MHLMC), Minneapolis/St. Paul, Minn. The MHLMC first developed in 1989 as a regional organization to support and promote cooperation between labor and management in hospitals. In the rapidly changing health care industry of the 1980s and 1990s, cooperation was seen as a tool to promote restructuring and to bring multiple parties into the discussion about the organization of hospitals. Over time, MHLMC members wanted to more precisely understand the role and effect of labor-management cooperation as hospitals tried to stay competitive.

Through the involvement of the MHLMC, this study achieved broad participation among hospitals and unions. Sixteen of the 18 eligible hospitals in the area chose to participate in the study. In addition, unions representing the vast majority of health care workers in the region — including the American Federation of State, County, and Municipal Employees (AFSCME), the Association of Diagnostic and Imaging Technologists (ADIT), the International Union of Operating Engineers (IUOE), Minnesota Licensed Practical Nurses Association (MLPNA), the Minnesota Nurses Association (MNA), and the Service Employees International Union (SEIU) — all actively participated in and supported this study. Collectively, the participating hospitals exhibit a broad range of characteristics, from the heavily unionized to those without unions, from the rural to the urban and suburban, and both the publicly and privately owned. (All hospitals in the geographic area are nonprofits.)

Minneapolis/St. Paul: A Model for Hospital Restructuring

In many ways Minneapolis/St. Paul is an ideal setting for an examination of restructuring in hospital care. The region was one of the first in the country to experience extensive managed care growth and the dramatic changes in the health care market that came in its wake. Only over the past few years have most other regions in the country begun to experience similar hospital restructuring, making the Twin Cities a precursor and model for other areas (OTA 1994).

The Minneapolis/St. Paul region also provides a unique opportunity to examine the effects of labor-management cooperation on hospital restructuring. The hospitals in this area are highly unionized, with over 80% of registered nurses and 60% of all hospital employees belonging to unions. This is higher that in most regions of the United States, even those with traditionally strong union representation. The region is also unique in terms of the extensive cooperation that has developed between unions and hospitals in the Twin Cities in order to address patient care and restructuring initiatives. While this effort was unique a few years ago, other cooperative efforts have recently developed in New York City and at Kaiser-Permanente in California. Nevertheless, hospitals and unions in the Twin Cities are still adopting varied strategies for addressing the competitive pressures they face, and they differ on whether to establish close cooperation as a more lasting and formal part of restructuring initiatives.

The Minneapolis/St. Paul region provides a unique opportunity to examine the effects of labor-management cooperation on hospital restructuring.

Overview and Main Results

This report examines how hospitals are adjusting to changes in competitive pressures, new technologies, and patient characteristics. We review the evolution of the health care industry, the changes in the health care market in Minneapolis/St. Paul, and the growth of cooperative labor-management relations in the Twin Cities. We then present an empirical analysis of the relationship between labor-management cooperation and two outcomes of great interest — RN staffing levels and the financial performance of hospitals. The analysis is based on data for 14 hospitals over a 10-year period from 1985 to 1994. The study controls statistically for differences in the severity of patient illnesses, the mix of patient services, the number of patients treated, and the mix of payers. In the end, we find that broader labor-management cooperation both increases the use of skilled nurses (measured as RN staffing per patient-day) and makes it easier for hospitals to adjust to both patient needs and competitive demands. Moreover, broader cooperation is correlated with better hospital financial performance. In addition, across a wide range of employee groups, including dietary workers, housekeepers, licensed practical nurses, nursing assistants, plant maintenance workers, radiological technologists, and registered nurses, labor-management cooperation is linked to more direct employee participation in decision making.

HEALTH CARE: THE EVOLUTION OF THE INDUSTRY

The health care industry is in the midst of broad-scale restructuring. As one of the largest segments of the United States economy, health care industry expenditures accounted for 13.6% of the gross domestic product in 1990, or over $1 trillion dollars (HHS 1998). With more than 10.2 million people employed in the health care industry in 1993 (Outlook 1994), changes to the organization, productivity, and institutions of this sector have broad economic repercussions.

The vast majority of all those insured in the United States are currently covered by some form of managed care insurance.

Though medicine has made dramatic technological improvements over the past 50 years, the industrial structure of health care remained surprisingly constant until recently. Initiatives by private employers to control the spiraling costs of health care and continued government pressure to contain Medicare and Medicaid costs have motivated insurers to make broad changes in the organization and provision of health care. New practices arose to more closely manage the care provided by physicians, and firms encouraged employees to use insurers with greater cost controls and more centralized oversight. The result has been a dramatic shift toward managed care providers and an increase in the competition between hospitals.

Managed Care and Health Maintenance Organizations

The large-scale growth of managed care and health maintenance organizations (HMOs) in the United States is a relatively recent phenomenon. As recently as 1985, traditional fee-for-service indemnity plans covered the vast majority of people in the United States. Now most people with health insurance are covered by managed care plans or HMOs, which covered 52.5 million people in 1995 (Health, United States 1995). By 1997, HMOs enrolled 34% of those insured in Massachusetts, 46% in California, and 45% in Oregon. In several metropolitan regions, HMO penetration surpasses 50%. In addition, the vast majority of all those insured in the United States are currently covered by some form of managed care insurance.

HMOs historically reflected a particular approach to managing the patient care process and controlling costs. HMOs carefully monitored the care provided to patients, typically through salaried doctors and closely linked hospitals. More recently, HMOs and managed care insurers have adopted a broader set of practices through which they seek to control costs within a larger network of care providers. In contrast to the more diffuse practices under fee-for-service plans, managed care insurers strive to control costs through the use of methods like physician gatekeepers to manage the care process; financial incentives for physicians, hospitals, and patients; and the close monitoring of patient care.

One result of this trend toward managed care and HMOs has been a decrease in overall health service utilization over the past decade. One study finds that HMOs that employ their own physicians have reduced health service utilization by nearly 20% (CBO 1995), an effect that may spill over and influence the behavior of all providers in a region (Baker 1993; Dowd 1986). As a result, total hospital discharges dropped by over 12%, average length of stay decreased by 17%, and days of care per 1,000 people dropped by 38% from 1985 to 1995. Even though the number of beds in community hospitals dropped from over 1 million in 1983 to approximately 915,000 in 1993, this almost 10% decline has been insufficient to maintain occupancy levels (IOM 1996).

Managed Care and Hospital Restructuring

The adoption of the prospective payment system by the federal government in 1983 and the early growth of managed care led hospitals to lower costs by discharging patients from intensive care earlier and sending them home faster. While the total number of hospital beds declined as a result, there were few changes in the way work was conducted in hospitals. Reimbursement changes did not lead hospitals to redesign inpatient care practices (Hirschhorn 1994).

Large regional and national managed care firms demanded ever-increasing discounts over the 'usual and customary rate' from independent local hospitals.

In fact, the ratio of RNs to ancillary personnel rose during the 1980s (IOM 1996). As patients were discharged faster and less critically ill patients were treated in outpatient clinics, the average acuity of patients within hospitals steadily increased (Carter, Newhouse, and Relles 1990). The development of new medical technology also enabled physicians to treat patients who are more acutely ill than previously possible. In response, hospitals employed more registered nurses and decreased the ratio of ancillary personnel throughout the 1980s. The higher skills and flexibility of RNs compensated for the modest wage differential between registered nurses and licensed practical nurses at the time (Aiken and Hadley 1988).

As managed care insurers grew during the 1980s and 1990s, their power within the health care industry increased dramatically. Large regional and national managed care firms demanded ever-increasing discounts over the "usual and customary rate" from independent local hospitals. Some managed care firms negotiated capitated payment contracts whereby a hospital would be responsible for all the hospitalization needs of a defined population. As a result, payments to hospitals dropped and patient care risk shifted to the hospitals, encouraging administrators and physicians to adopt more efficient practices.

Threatened with the loss of patients, hospitals had few choices but to accede to these demands. Hospital administrators and physicians began to search for ways to drastically reduce costs as well as increase market power. Hospitals merged,

bought out physician practices, and built their own integrated delivery systems to increase their patient base. These agreements have, in turn, led some hospitals to compete directly with managed care providers by contracting directly with employers. In Minneapolis/St. Paul, nearly one-third of the area's hospitals have closed over the past 10 years, with an additional five more hospital closures projected over the next few years.

Overall, the recent changes in the industrial organization of health care signal a clear shift toward cost-based competition among care providers. Health care providers initially focused on reducing the number of beds in hospitals. More recently, attention has focused on methods to reduce costs and improve hospital processes, such as integrating ambulatory care into inpatient care, improving laboratory and medical record procedures, and adopting new nursing care methods.

MINNEAPOLIS/ST. PAUL: A CHANGING HEALTH CARE MARKET

Many see the changes in the Minneapolis/St. Paul health care market presaging those in store for other regions in the country. With the early growth of managed care and the development of integrated delivery systems, the health care environment in Minneapolis/St. Paul has been studied extensively in the hopes of understanding how changes in insurance, hospital industrial organization, and hospital structure affect critical financial outcomes (OTA 1994). To set a context for discussing the changes in hospital workplace practices, we briefly review the Minneapolis/St. Paul health care market's history.

In the 1980s, HMOs first began to significantly decrease hospital admissions and average lengths of stay.

HMOs have historically played a unique role in the Minneapolis/St. Paul area. The first regional HMO, Group Health Inc., was formed in 1957 as a consumer cooperative. Group Health originally employed salaried physicians and contracted with local hospitals for services. At the time, private employers rarely offered Group Health to their members, and physicians considered it inferior medicine. In fact, early advocates of Group Health were primarily local unions and public-sector employees.

The local perception of HMOs changed in 1972 when a leading, multi-specialty physician group practice created an HMO, MedCenters, in response to local employer interest. In 1975, another HMO was formed, signaling the broader growth of HMOs in the Minneapolis/St. Paul area. Between 1971 and 1978, HMO membership grew at a 27% annual rate, and 12.4% of the Twin Cities population was enrolled in one of the seven available HMOs that had sprung up by 1978. (This compares with a national average of 5% at the time.) The development of an alternative HMO model, the independent practice association, whereby people could choose their physician from a much larger pool of providers, integrated the cost controls available within an HMO with the choice and freedom demanded by patients. During the 1980s, HMO growth was further promoted by a revision in Minnesota state policy encouraging the use of HMOs by state employees. By 1992, 44% of the Twin Cities population was enrolled in an HMO.

Research suggests that the early growth of HMOs in the 1970s minimally affected hospital utilization (Kralewski et al. 1982; Luft et al. 1986; Feldman et al. 1986). This changed in the 1980s, however, as HMOs first began to significantly decrease hospital admissions and average lengths of stay, and then increasingly focused on hospital charges as a way of selecting sites for patient care. The result was growing pressure on hospitals to alter the way care was provided to patients, resulting in declines in average lengths of stay across all service areas. This change

in HMO practices resulted in significantly shorter lengths of stay for patients covered by HMOs than for those enrolled with traditional indemnity insurers (Dowd 1986).

Moreover, the competitive dynamics within the Minneapolis/St. Paul health care community shifted dramatically. Between 1971 and 1990, the number of beds per 1,000 people in the Twin Cities decreased from 5.1 to 3.0 (OTA 1994), primarily as a result of closing six of the Twin Cities' hospitals. Even with the decreasing number of available beds, hospital occupancy shrank over this period. Among hospitals participating in this study, occupancy rates of licensed hospital beds fell from 59% in 1985 to 43% in 1994. By other measures, the fall was even more dramatic.

Among hospitals participating in this study, occupancy rates of licensed hospital beds fell from 59% in 1985 to 43% in 1994.

As hospitals faced increasing pressure from HMOs, they merged to form multi-hospital systems. These mergers served multiple functions, including increasing market power in negotiations with HMOs, easing the effects on employees of hospital closures and downsizing, reducing administrative costs through common overhead, and improving access to capital markets (OTA 1994). By 1987, four hospital systems grew to dominate the Twin Cities market, claiming over 50% of all admissions.

The final phase of health care restructuring in Minneapolis/St. Paul occurred during the early 1990s, a time when large HMOs and hospitals continued merging. By the end of 1992, two HMOs, Medica and HealthPartners, had over 90% of the HMO enrollment. In addition, HMOs began to actually merge with hospitals for the first time, forming large, integrated networks that combined the insurance and provider components of the health care industry. The first of these was on December 2, 1993, when the HMO HealthPartners merged with a local hospital. Six days later, Medica proposed a merger with the area's largest multi-hospital system to form Allina — the first truly integrated delivery system with a large HMO, numerous physician clinics, and a health care delivery system that included hospitals, long-term care facilities, and nursing homes.

These final mergers resulted from two forces operating in the Twin Cities health care market. The first of these was the adoption of a 1992 Minnesota law promoting integrated service networks that combined insurance and patient care. These integrated service networks contract directly with employers and provide cradle-to-grave care for patients. State regulation was adopted to control the rate of growth in each network's expenditures and limit overall health care costs in the state. The second force promoting integration was a push by primarily large, self-insured employers through the Business Health Care Action Group (BHCAG) to develop cost-effective health care for their employees. Through close cooperation

with a health plan, the BHCAG hoped to decrease costs while improving overall health care quality.

These changes in the industrial structure have had clear repercussions on the financial performance of hospitals. During 1985-87, the net mean income per patient-day among hospitals participating in this study fell to near zero. Since 1988, financial performance has improved as hospitals have merged into networks and reduced the number of beds in the area. This improved performance, though, is not shared by all area hospitals. While some facilities appear to be prospering, others continue to lose money. Recently, two hospitals that lost money throughout the past decade were either closed or slated for closing.

LABOR-MANAGEMENT RELATIONS AND THE GROWTH OF COOPERATION IN MINNEAPOLIS/ST. PAUL

In contrast to other regions of the country, union organizing has historically been high in the Minneapolis/St. Paul region. The Minnesota Charitable Hospitals Act of 1947, which first permitted unionization of hospital employees, prohibited strikes and required mandatory arbitration once an impasse was reached. Perhaps due to this historical legacy, the relations between unions and hospital managers had always been "characterized by good feelings between the parties" (Miller et al. 1979, 118). This goodwill continued even after state law permitting strikes and lockouts was superseded by federal law in 1974.

By 1989, local unions represented over 60% of the health care workers in the Twin Cities.

By 1989, local unions, including the American Federation of State, County, and Municipal Employees (AFSCME), the Association of Diagnostic and Imaging Technologists (ADIT), the International Union of Operating Engineers (IUOE), the Minnesota Licensed Practical Nurses Association (MLPNA), the Minnesota Nurses' Association (MNA), and the Service Employees International Union (SEIU), represented over 60% of the health care workers in the Twin Cities (Industry Wage Survey 1989).

This unusually high unionization rate of hospital employees greatly affected the character of labor-management relations in the Twin Cities. Beginning in the mid-1950s, the hospitals and unions began negotiating area-wide contracts to standardize employment costs. These multi-employer negotiations were conducted with all area unions and included most hospitals. The few nonunion hospitals matched negotiated wages and benefits to prevent unionization.

The 1984 negotiations between the hospitals and the MNA took place during a critical juncture in the history of health care, both in the United States and in Minneapolis/St. Paul. As described earlier, the growth of HMOs and the adoption by the federal government of the prospective payment system for Medicare sent a clear signal that a new health care environment was developing. While hospitals reacted to external pressures by trying to increase staffing flexibility, registered nurses wanted to ensure some control over the process and increase job security. When a few hospitals attempted to cut costs by laying off some of their more skilled and senior RNs, tensions between the MNA and local hospitals increased (Reverby 1987).

After an inability to reach an agreement, 6,300 RNs at 16 hospitals went on strike over job security. The strike was the largest nursing strike ever in the United States and lasted for 39 days. It resulted in the adoption of seniority as the basis for

future layoffs and led to the realization that alternative approaches must be developed for addressing future changes.

Prior to the negotiations, two hospitals, United and Children's St. Paul, decided to negotiate separately with the MNA. Though the hospitals ended up paying higher wages, they also successfully avoided the strike and the animosity associated with it. In contrast, at these two hospitals, management and union leaders decided to build on the earlier history of open relations and experiment with labor-management cooperation as a way to address growing challenges.

The local Federal Mediation and Conciliation Service (FMCS) was brought in with the objective of building a relationship between labor and management and improving communication within the hospital. As an initial step, the hospital and union leaders chose to work on a few projects desired by both parties. These included efforts to reduce absenteeism, improve overall communication, devise a vacation scheduling system, and ease access to educational programs for RNs. By the end of this period, the hospital and union leaders opted to continue cooperation and formalize it as an approach to cutting costs and improving productivity.

During its first few years, the general spirit of labor-management cooperation slowly diffused as Twin City hospitals merged.

The Diffusion of Labor-Management Cooperation

During its first few years, the general spirit of labor-management cooperation slowly diffused as Twin Cities hospitals merged. Some of these hospitals continued working toward cooperative efforts, while others maintained traditional adversarial labor-management relations. Even among those hospitals supporting employee involvement, hospital leaders adopted different strategies. Some leaders promoted cooperation with union leaders; others decided to exclude the unions and establish cooperation directly with employees.

In 1987, though, a shift in the character of cooperation occurred in a few hospitals. The growing pressures on hospitals to restructure care promoted growth in two areas. First, a decision was made to build on cooperative efforts by promoting direct employee participation in quality initiatives and job redesign. Efforts were also made to increase cooperation at the corporate level to oversee and more formally promote cooperation with diverse employee groups. These corporate efforts resulted in greater information sharing, including the sharing of hospital financial data with employees.

Even with this growth in cooperation, only four hospitals had formal labor-management committees by 1989. Moreover, only one hospital had developed a labor-management committee with a union other than the MNA, establishing committees with SEIU and IUOE as well. While diffusing slowly as a practice, support for cooperation was building among hospitals and unions in the Twin Cities. With

the support of several hospitals and unions, the Metropolitan Hospitals' Labor-Management Council (MHLMC) was established in 1989 to promote the expansion of labor-management cooperation among local hospitals and unions.

Throughout the late 1980s and into the 1990s, labor-management cooperation faced several tests. One such instance arose when the Metropolitan Mt. Sinai Hospital, a large, downtown medical center, was closed in 1991 (Presentation to the Commission on the Future of Worker-Management Relations 1994). Through close cooperation among hospitals and unions, nearly 90% of the 1,475 employees were placed in new jobs. This high placement rate highlighted the potential of cooperation in an era of restructuring and the value to all parties of working together to address problems.

By 1996, every hospital with unionized employees had at least one labor-management committee.

In a separate example, cooperative relations between IUOE leadership and management at United Hospital in St. Paul have led to a re-examination of plant maintenance work that had been contracted out. Now a team of maintenance workers and supervisors examines contracts, evaluates costs, and analyzes what work can be brought back or kept in-house. Even though the efforts to take back responsibility of maintenance and repairs has at times required employee training, the savings have been significant and the quality of work has improved (Prism 1995).

While these examples of close cooperation signaled the positive potential of cooperation, other experiences underscored the inevitability of conflict even within cooperative contexts. In 1993, one hospital responded to cost pressures by bringing in APM, a health care consulting group, to quickly cut direct patient-care costs. Hospital administrators invited the unions to join the process but stipulated that the restructuring objective — to cut $10 million from the budget — was not negotiable. The MNA elected not to participate in the process and, in fact, led an active, public campaign against the initiative, which focused on reducing the RN skill mix and decentralizing work to ancillary personnel in order to cut average wages.

Overall, the early 1990s saw a rapid diffusion in labor-management cooperation across and within hospitals. By 1996, every hospital with unionized employees had at least one labor-management committee, with most of these establishing cooperative efforts with several unions. Significant differences, though, remained among the hospitals. While some hospitals had worked on building cooperation for over a decade, others were taking the first early steps toward open communication. Although labor-management committees were included within union contracts, the interpretation of their role in the hospital and their decision-making authority varied widely across facilities.

The next stage in the effort to institutionalize labor-management cooperation was a movement away from traditional bargaining in the multi-employer negotia-

tions and toward interest-based bargaining. Even though extensive cooperative efforts were developed between the hospital and union leadership as contract negotiations neared, relations between the hospital and the unions grew more traditional as the parties entered the collective bargaining process. Naturally, after contract settlement, trust would need to be re-established. In response, both hospital administrators and union leaders felt that contract negotiations should adopt the characteristics of more open discussions seen in the rest of the relationship. The result was a shift to interest-based bargaining for nearly all contract negotiations by 1995. According to local participants, these negotiations were very successful and helped further strengthen cooperation within hospitals.

Future negotiations will mirror different strategic directions adopted by hospital networks.

Recent Developments: The End of Centralized Bargaining and Cooperation

Several developments during the 1995 negotiations between the MNA and the hospitals foreshadowed some recent changes. One of these developments was the decision by one local hospital to negotiate separately with the MNA. Though their agreement closely mirrored the broader contract, hospital administrators felt a need for greater flexibility in adjusting to competitive pressures and building their own strategic direction. They expected that the contract would continually adjust to local needs over time. In another development, hospital administrators felt that they spent most of the time negotiating with each other rather than with the union. Several hospitals, for example, wanted to raise LPN wages to increase the available supply, but others feared that any LPN wage increase would result in higher wages for nurse assistants. These internal discussions reflected broader differences in strategic direction, including nursing care practices and labor-management relations.

These differences in hospitals' strategic directions have resulted in the recent elimination of multi-employer bargaining in the Twin Cities. Future negotiations will occur independently for each network or hospital and will begin to mirror the labor-management relations already present within each hospital and/or network. Some negotiations will return to more traditional adversarial models, while others will maintain and build on the interest-based bargaining approach recently adopted.

The different approaches to labor-management relations also led to the recent collapse of the Metropolitan Hospitals' Labor-Management Council. As the networks adopted different strategic directions, labor-management relations diverged as well, increasing the pressure within the MHLMC. Ultimately, tension between one hospital network and the MNA consummated the overall dissolution of the MHLMC. Those groups seeking more extensive cooperation felt constrained by

the adversarial labor-management relations at other hospitals. By the same token, administrators maintaining adversarial relations did not want hospitals with extensive labor-management cooperation to limit their actions. Obviously the expectations shaping these relationships can vary widely. One network of hospitals views cooperative relations with unions as a strategic advantage and has developed agreements on cooperation and union involvement in decision making at all levels of the organization. This arrangement includes participation by a union leader from SEIU on the corporate board of directors. Another hospital system has promoted extensive cooperation within each hospital but has limited labor involvement in the chain's strategic decision making. A third network has maintained more distant relations with unions and has limited all cooperation and involvement. As for the independent or "unaffiliated" hospitals, they have adopted a wide range of strategies for addressing union involvement.

Many of the community institutions that had established shared practices for the area's many hospitals have disappeared.

Multi-employer bargaining and the MHLMC, however, were not the only community health care institutions to undergo dramatic changes. The Minnesota Hospital and Healthcare Partnership, an association of hospital employers, also has faced significant cutbacks in member participation. Some local hospitals withdrew from the organization, and others developed internal mechanisms to replace several of the information development and competitive benchmarking functions now viewed as a source of competitive advantage within the Minneapolis/St. Paul health care market.

Thus, many of the community institutions that had established shared practices for the area's many hospitals have disappeared. As cooperative negotiations devolve and labor-management relations are redefined, hospital practices will become more varied and less uniform in the Minneapolis/St. Paul area. Although past attempts by hospitals to bargain separately resulted in higher wages, this will probably not be the case in the current competitive environment. Unfortunately, both hospitals and employees stand to lose in the new environment. The flexibility hospitals achieve through cooperation with a broader community of care providers may diminish. For example, the cooperation among hospitals and unions that helped to find jobs for Metropolitan Mt. Sinai Hospital employees when it closed may not be possible in a more decentralized environment. Each hospital or hospital system will have to create its own internal mechanisms to ensure similar job security and flexibility. While larger networks may still find ways of achieving this, smaller, independent hospitals will suffer from this breakdown in cooperation and the disappearance of community institutions.

THE ROLE OF LABOR-MANAGEMENT RELATIONS IN SHAPING HOSPITAL EMPLOYMENT PRACTICES AND OUTCOMES

As has already been mentioned, critical to the long-term success of hospitals will be their ability to adopt appropriate staffing levels, to find the proper mix of skills and work practices in nursing units, and to retain the flexibility needed to adjust these factors as necessary. Hospital administrators are searching not only for new business strategies but also for new ways of organizing nursing care practices. Some of these new practices involve changes in the mix of nursing skills, staffing intensity, and work organization practices on nursing units.

Hospital administrators are searching not only for new business strategies but also for new ways of organizing nursing care practices.

Labor-Management Relations and Hospital Adjustment

Labor-management relations can potentially play one of two competing roles in hospital restructuring. On the one hand, unions can be seen as placing constraints on management decision making. From such a perspective, the presence or threat of a union limits managers in their decision-making scope when considering organizational change (Freeman and Medoff 1984). Such inhibitions imply that unions limit changes in hospital staffing intensity and slow the time it takes to adjust work practices in response to shifting demands.

On the other hand, a cooperative relationship with unions can be seen as an efficient means of facilitating adjustments in firm practices and strategies. In fact, unions may actually promote the adoption of more comprehensive organizational change (Eaton and Voos 1992; Frost 1997; Rubenstein 1996). By operating as a unified voice for employees, unions can enable the development of better organizational innovations and ease their integration in a way that is mutually satisfactory for both the employees and the firm. With the development of cooperative labor-management relations, unions and hospital managers can increase the amount and type of information communicated, address problems as they arise, and develop workplace practices that meet both competitive concerns and employee needs. This is precisely what was observed between the IUOE and United Hospital as maintenance and repair work was brought back into the hospital, reducing costs and improving quality.

Labor-Management Relations and Hospital Performance

Most large organizations are complex entities that typically require the coordination of work across numerous functional boundaries (Lawrence and Lorsch 1968;

Gittell 1996). In any effort to restructure work practices in these kinds of organizations, changes in the job definition or responsibilities of one group of workers almost invariably requires the redefining of jobs in other groups within the organization. For example, increasing the task responsibilities of nursing assistants necessitates a shift in work tasks for LPNs or RNs.

As this project suggests, to successfully accomplish restructuring, it is in a hospital's best interest to cooperate with all employees and the various unions that coexist in a single hospital or network. In hospitals, this issue is particularly salient — the National Labor Relations Board may recognize up to nine different unions in a single hospital, and in the Minneapolis/St. Paul area, several hospitals have as many as five unions representing different employee groups. Cooperation with a single union may fail to address critical changes that occur across functional boundaries and may fail to achieve the hoped-for productivity gains from shifts in the traditional boundaries among groups.

To successfully accomplish restructuring, it is in a hospital's best interest to cooperate with all employees and the various unions that coexist in a single hospital or network.

The cooperative arrangement between the IUOE and United Hospital clearly highlights an additional advantage to this dynamic. When high-skilled repair and maintenance work was brought back into the hospital, labor-management cooperation eased the transfer of responsibility for basic "maintenance work," such as changing a light bulb, to non-maintenance workers within the hospital unit. As a result, the organization successfully adopted productivity improvements that led to higher performance, not only in the specific work brought back for plant maintenance employees, but also for other units in the hospital.

LABOR MANAGEMENT COOPERATION AND EMPLOYEE INVOLVEMENT

Research on high-performance (or high-commitment) organizations has found that employee involvement in decision-making processes is important in improving organizational performance and employee outcomes. These practices improve the quality of information available for decision making in organizations, and they empower employees to make decisions in response to changing conditions (Bailey 1992).

Direct employee involvement can occur through two means. Employees can participate in daily decisions on their job, and they can serve on cost-cutting or quality improvement teams.

Direct employee involvement can occur through one of two means. First, employees can participate in daily decisions on their job or unit. Examples of such participation include setting work schedules, defining training for unit employees, and determining appropriate work methods. Employees can more broadly participate by serving on cost-cutting or quality improvement teams that help improve organizational performance. These teams have been used extensively in hospitals as part of total quality management initiatives.

To examine the extent of direct employee involvement, surveys were distributed to over 6,000 employees at participating hospitals, including dietary workers, housekeepers, licensed practical nurses, nursing assistants, plant maintenance workers, radiological technologists, and registered nurses. Overall, several interesting findings were observed (see **Table 1**). First, while a high proportion of employees report that they participate in daily decisions on their job or unit, participation rates vary both across hospitals and occupational groups. Across hospitals, the proportion of employees who report that they participate at least a little in unit decision making over scheduling, training, and work processes ranges from 46% to 61%. When examining participation across occupations, it is also clear that some occupational groups participate dramatically more on their unit than others. For example, 32% of the licensed practical nurses in the hospitals say that they participate to some degree in decision making in their unit. In contrast, over 60% of the dietary workers, radiological technologists, and plant maintenance workers claim to participate in this way. This variation across occupational groups suggests that hospitals have significant potential to improve performance through a wider diffusion of direct employee participation on the job and unit.

To further examine the extent of employee participation in decision making, we also looked at what proportion of the employees were involved with cost-cutting or quality improvement teams. Similar to the findings above, the level of participation varied by both hospital and occupation. The range by hospital, however, was not as wide as that between occupations. For example, most hospitals

TABLE 1
Occupational differences in online and offline employee involvement

Occupation	Direct participation on unit (in percent), mean	Participation in quality circle (in percent), mean
Registered nurses	50	62
Licensed practical nurses	32	45
Nursing assistants	42	36
Dietary workers	62	27
Housekeepers	43	21
Radiologists	64	35
Plant maintenance	68	25

have had approximately 30-40% of their employees on cost-cutting or quality improvement teams. Only two hospitals among those examined had more than 40% of their employees on "quality circles" or improvement teams, and only one hospital had fewer than 30%. In contrast, a wider variation was observed when comparing occupational groups. While only 21% of housekeepers said that they had participated on cost-cutting or quality improvement teams, over 60% of the registered nurses had reported doing so (see Table 1).

This variation in participation between occupational groups may reflect the perceived gains from increasing the participation level of certain groups. In other words, participation by certain groups may be seen as more beneficial than that of others. However, research has shown that high-commitment practices that involve employees on quality and work organization teams improve performance and organizational outcomes across a wide array of occupations and settings (Ichniowski et al. 1996). The limited participation, both on the job and in teams, by some occupational groups and in some hospitals can only result in lower hospital performance.

A final consideration in this analysis was an attempt to understand what factors determine the extent of employee involvement for the various occupational groups. Summary statistics for the variable used in the analysis are presented in **Table 2**. Through a regression analysis using data gathered from the hospitals and their employees, several interesting and important findings are observed (**Table 3**). First, the effect of unions on employee involvement occurs through formal labor-management cooperation. Employee involvement is higher for those occupational groups with longer-running labor-management committees that bring unions and

TABLE 2
Summary statistics

	Mean	Standard deviation
RN hours/patient-day	11.50	2.96
Income per patient-day	49.80	80.90
RN skill mix	0.75	0.09
Case mix index	1.36	0.15
Log total patients	9.57	0.59
Percent managed care	32.70	13.90
Proportion ICU days	0.08	0.05
Proportion of groups unionized	0.50	0.44
Total labor-management committees	1.24	2.08

TABLE 3
Employee involvement in decision making

Variable	Employee involvement in decision making Coef. (std error)
Labor-management relations	
Labor-management cooperation	0.006(0.003)*
Union status	-0.025(0.034)
Competitive pressures	
Percent managed care	0.002(0.001)**
Hospital income / loss	-7.4e-9(3.7e-9)**
Hospital and patient characteristics	
Hospital size	6.9e-6(0.000)
Case mix index	0.249(0.106)**
Change in case mix index	0.889(0.672)
Employee involvement in hospital system	0.192(0.097)*
Occupational characteristics	
Interaction with data	0.002(0.011)
Interaction with machinery	-0.024(0.009)**
Interaction with people	0.145(0.024)***

Number of Observations = 87
Adjusted R2 = .43

* = p < .1
** = p < .05
*** = p < .01

hospital management together. Unionization in and of itself does not have a direct effect on the level of employee involvement, suggesting that the cooperation between hospital and union leadership is what translates into broader involvement for employees throughout the hospital. Several other factors also affect the extent to which employees are involved in decision making, including the degree of economic and competitive pressure faced by the hospital, the level of patient acuity, and differences in the characteristics of occupations.

Dramatic changes to the organization of health care have led unions and managers to search for new ways to make hospitals more flexible and cost competitive.

Methods and Data

This analysis of labor-management cooperation, organizational flexibility, and financial performance is based on a 10-year panel data set of hospitals in the Minneapolis/St. Paul area. Out of a potential set of 18 hospitals in the Minneapolis/St. Paul area, two hospitals chose not to participate in the study. From the 16 remaining hospitals, two more were excluded since they are children's hospitals and have a sufficiently different patient/client base and market concerns.

Agreement to participate in the study included the release of proprietary patient discharge data from the Minnesota Hospital and Healthcare Partnership (MHHP), which is the primary state hospital and health care employer association. For almost 20 years, hospitals have sent the MHHP summary reports about each discharged patient for use in evaluating and benchmarking hospital performance. The MHHP measures used for this study's analysis include discharge numbers and patient-days (by hospital and service group), payer mixes, patient demographics, and a case severity index. Each participating hospital released 10 years of annual data from 1985 to 1994.

The patient discharge data were integrated with data from two additional sources. The first of these is the Minnesota Department of Health, which requires hospitals to complete annual financial reports with information about all cost and revenue sources. These reports measure hospital investments, skill mix, number of beds, patient-days by hospital area, total wages, and the number of full-time equivalents (FTEs) for each skill group. The second source was the Federal Mediation and Conciliation Service, which worked with hospitals and unions in their movement toward cooperative relations and provided a chronicle of this involvement dating back to 1985. Information from the FMCS was integrated and cross-checked with the reports from hospital and union leaders regarding the initiation of labor-management cooperation.

This study uses a partial adjustment model with a lagged dependent variable to examine how unionization and labor-management cooperation affect the ease of hospital restructuring. To evaluate the effect of practices on adjustment flexibility,

variables are interacted with the lagged dependent variable. As a result, a significant and negative result on this interaction suggests that a particular practice reduces the effect of previous staffing levels on those currently observed, thus easing organizational adjustment. In contrast, a significant positive result suggests that the practice slows adjustment in response to changing conditions. A list of specific measures and more detailed analysis methods are included in the Appendix.

Results

In an environment requiring regular adjustments to changing demands, labor-management cooperation is positively correlated with a hospital's capacity to respond to changing competitive pressures by shifts in staffing levels. The observed result on the interaction between the extent of cooperation and the previous year's staffing levels (**Table 4**, Row 14) suggests that extensive cooperation allows more flexibility in staffing. In contrast, the extent of unionization alone does not affect hospital staffing adjustment. Dramatic changes to the organization of health care in Minneapolis/St. Paul and increased competitiveness among hospitals has led unions and managers to search for new ways to make hospitals more flexible and cost competitive.

More extensive labor-management cooperation, however, not only makes hospital practices more flexible, it also leads to two other important outcomes: higher staffing intensity and better financial performance. In Table 4 (Row 12), more extensive cooperation is shown to be positively correlated with higher RN staffing levels even after controlling for patient and competitive characteristics. In examining both the direct effect of cooperation on staffing levels together with its effect on adjustment speed, cooperation across all unions increases RN staffing levels by 1.2 hours per patient-day, as compared to hospitals with no cooperative arrangements with unions. Higher staffing levels are therefore observed under comprehensive labor-management cooperation up to a staffing level of 15 RN hours per patient-day. In addition, more extensive labor-management cooperation is positively correlated with better hospital financial performance (**Table 5**, Row 12). This analysis finds that comprehensive cooperation across all union groups is correlated with nearly $80 more income per patient-day in comparison to hospitals with no cooperative relations with unions. With hospital income per patient-day ranging from -$147 to $284, comprehensive cooperation has a dramatic economic benefit for hospitals.

There are several explanations for this result. First, better performing hospitals may have higher staffing levels, and they may adopt a cooperative approach to

TABLE 4
Adjustment of skilled staffing intensity

Variable	RN hours per patient-day Coef. (std error)
Lagged dependent variable	0.758(0.085)***
Patient acuity	
Case mix index	7.230(1.359)***
Percent of patient days in ICU	16.19(3.828)***
Competitive pressures	
Managed care penetration	-0.005(0.015)
RN wages per full-time-equivalent	-.0002(.0000)***
Control variables	
Log total hospital patients	0.563(0.467)
Patient service mix 1	0.013(0.446)
Patient service mix 2	0.181(0.183)
Patient service mix 3	0.985(0.257)***
Year	0.463(0.088)***
Labor-management relations	
Proportion of groups unionized	0.221(1.528)
Extent of labor – management cooperation	0.857(0.265) ***
Proportion of groups unionized X lagged dependent variable	-0.199(0.144)
Extent of labor – management cooperation X lagged dependent variable	-0.057(0.022)***
No. of Observations	114
No. of Groups	13
Time Periods	9

* = p < .1
** = p < .05
*** = p < .01

working with unions. The caliber of management in these hospitals may be responsible for both the higher staffing levels observed and the foresight to cooperate with unions. A second explanation might be that cooperation enables hospitals to adopt better-performing work practices even at higher staffing levels. For example, these hospitals may decentralize supervisory responsibilities to employees, reducing overall patient care costs and improving hospital performance. This is supported by the earlier finding that labor-management cooperation increases the extent of employee involvement within the hospital. A third alternative is that

TABLE 5
Determinants of hospital financial performance

Variable	Income per patient day Coef. (std error)
Staffing	
RN hours per patient day	-5.289(4.651)
RN skill mix	-231.9(113.9)**
Patient acuity	
Case mix index	15.67(106.2)
Percent of patient days in ICU	653.9(292.6)
Competitive pressures	
Managed care penetration	3.086(1.120) ***
RN wages per full time equivalent	-0.002(0.002)
Control variables	
Log Total hospital patients	-71.17(47.62)
Patient service mix 1	-29.80(39.30)
Patient service mix 2	47.04(23.23) **
Patient service mix 3	49.03(22.69) **
Year	13.05(6.925) *
Labor-management cooperation	13.60(4.431) ***
Pr > F	0.0000
No. of observations	115
n	13

* = p < .1
** = p < .05
*** = p < .01

cooperation enables hospitals to compete in a different way within a turbulent market. By easing the adjustment process and increasing employee involvement, hospital administrators can flexibly respond to evolving patient demands by increasing RN staffing when necessary to attract patients and increase occupancy levels and by reducing staffing levels as nursing care requirements for the patient population decrease. In contrast, hospitals in which staffing adjustments are slow might not be able to take advantage of opportunities as they arise out of a concern with losing flexibility when lower-cost practices become necessary in the future.

In addition to more extensive cooperation, three other factors shape hospital financial performance — nursing staff skill mixes, the percentage of patients in intensive care units, and the prevalence of managed care. First, a higher RN skill mix (versus LPNs and NAs) is correlated with lower financial performance. Not

surprisingly, *holding all other factors constant*, a high RN skill mix (versus LPNs and NAs) increases the hospital wage bill, thus reducing overall financial performance. As we saw previously, however, this can be offset by more extensive labor-management cooperation. Second, a higher proportion of patient-days in intensive care units is correlated with better financial performance. Third, higher managed care penetration among the hospital's patients is positively related to better financial performance. This last effect may be explained by several different factors. It is possible that managed care providers may be forcing hospitals to become more efficient, thus improving overall performance. On the other hand, in an environment where managed care plays such an important role in supplying patients to hospitals, these hospitals may currently need managed care patients just to ensure financial success.

Labor-management cooperation and direct employee involvement make it easier to alter hospital staffing and provide a critical competitive advantage.

In the end, all of these results suggest that, as competitive pressures increase for hospitals, their ability to nurture labor-management cooperation and direct employee involvement makes it easier to alter hospital staffing and provides a critical competitive advantage. Strong labor-management ties can be a resource that simultaneously increases organizational performance and improves outcomes.

CONCLUSIONS AND RECOMMENDATIONS

By shaping hospital staffing patterns and flexibility, labor-management relations can significantly affect hospital performance and strategy. The important role of labor-management relations in organizational strategy suggests that union leaders and hospital managers must carefully determine the parameters of these relationships. It appears that some consideration has already been given to this relationship in the Minneapolis/St. Paul area, where the three main hospital systems have adopted different approaches to their labor-management relations. Among the three systems, one has actively promoted cooperation at all levels of the organization, another has maintained traditional relations with local unions, and the third system has established extensive cooperation within each hospital (though it has not built cooperation at the firm's strategic level). As might be expected, these labor-management strategies appear to closely reflect the broader competitive strategies of each of the hospital networks in the Minneapolis/ St. Paul health care market.

By shaping hospital staffing patterns and flexibility, labor-management relations can significantly affect hospital performance and strategy.

The findings in this report lead to two important recommendations for hospital and union leaders:

- ***Hospitals and unions should form labor-management committees.*** As mentioned above, these committees result in three desirable outcomes — greater organizational flexibility, higher nursing staff levels, and better financial performance. The development of cooperative relations between management and just two occupational groups is correlated with an increase of $26 in income per patient-day (measured as income loss or surplus from hospital operations divided by total patient-days). Comprehensive cooperation across all unionized groups is correlated with nearly $80 more in income per patient-day when compared to hospitals with no cooperative relations with unions. Either way, this is a dramatic economic benefit, since hospital income has ranged from -$147 to $284 per patient-day over the course of the study.

- ***Hospitals and unions should expand employee involvement and participation to all occupational groups.*** Wide differences in the level of employee involvement both on the job and on cost-cutting and quality improvement teams reduce potential hospital gains. This report finds that variations in cooperation and involvement levels across occupational groups may constrain a hospital's capacity to develop and implement the new practices that help it compete in an evolving market.

APPENDIX

Measures and Methods for Analysis of Labor-Management Cooperation and Hospital Performance

MEASURES

Dependent variables

Staffing and performance — Two measures of hospital performance are used within the analyses. The first set of analyses examines the role of unions and labor-management cooperation on RN staffing levels and on the ability of hospitals to adjust staffing levels in response to shifts in competitive and patient characteristics. This study uses registered nurse hours per patient-day. RN hours per patient-day measure the extent of skilled nursing utilized in patient care. The measure is created by dividing the total number of RN hours at the hospital by the number of patient days treated at the same facility.

The second set of analyses focuses on the effect of labor-management cooperation on organizational financial performance. Financial performance is measured as income per patient-day. Dividing total income (loss) from hospital operations by the total number of patient-days develops income per patient-day.

Independent variables

Extent of unionization — Union representation is measured by the extent of unionization at the hospital. In Minneapolis/St. Paul, up to seven different employee groups are represented by unions in the hospitals. The proportion of these groups represented by a union equals the extent of unionization for this study's analysis.

Labor-management cooperation — Labor-management cooperation is measured through a sum of the employee groups at the hospital with labor-management committees in place.

Patient acuity — A critical factor in shaping hospital staffing levels is the acuity of patients treated. As a result, this study includes several measures of patient acuity to fully address its role in shaping hospital practices. The first acuity measure is the "case mix index" as developed by the Health Care Financing Administration (HCFA). This measure reflects the acuity of Medicare patients treated at the hospital. The strength of this case mix index is that it is a measure incorporating intensity of care required on the basis of national standards. The primary weakness of this measure is that it is based solely on Medicare patients who must be at least 65 years old (although hospitals treating high-acuity Medicare patients would typically also treat high-acuity younger patients). The second patient acuity measure is the percentage of total patient-days in intensive care units. Higher-acuity patients in intensive care units typically require higher staffing levels.

Competitive characteristics — Two different measures of competitive pressure are included within the analyses, including managed care penetration and the RN wages per full-time equivalent. The percentage of managed care penetration is based on the total number of patient-days covered by a managed care insurer. Higher managed care penetration could result in either lower staffing intensity, as hospitals try to control costs, or in higher staffing intensity, as hospitals try to improve quality. Furthermore, higher managed care penetration may increase unmeasured patient acuity in the hospitals. As hospitals reduce length of stay or treat more patients in outpatient clinics to control costs, the average acuity of those patients admitted will increase. This, in turn, may lead to higher observed staffing levels.

RN wages per full-time equivalent reflect the financial pressures facing hospitals as they seek to cut costs in response to competitive pressures. Higher wages would be expected to increase the financial pressure facing hospitals. Alternatively, higher RN wages could reflect a strategic decision by management to adopt work practices based on lower staffing levels per patient-day and the number of registered nurses with greater experience and education. Both of these possibilities need to be controlled for in the analyses.

Control measures — In addition to the above measures, this study controls for the year and hospital size. This study uses a time trend by including the actual year as a variable in the analysis. In separate regressions (not shown), this study replaces the time trend with a dummy variable for each year except 1986 with no differences in outcomes observed. The second control variable is hospital size measured through the log of total patients treated at the hospital during the year. This was included to control for any economies of scale that hospitals may achieve in staffing prac-

tices. To control the variation in hospital specialization across service areas, this study includes three factors measuring the distribution of patients across service areas. Different areas of specialization could require different staffing levels. On the basis of the discharge reports, three factors were developed to control for this variation. The desire is to control the effect of service mix variation across hospitals and over time and not to predict how differences would affect staffing levels.

ANALYSIS

The analysis is conducted using a cross-sectional time series data structure, correcting for autocorrelation over time (Greene 1993). Each hospital/year is an independent observation. With 14 hospitals and nine years, the total sample is 126. This is reduced in specific analyses due to missing data or an examination of subsample characteristics. Ordinary least squares point estimates are presented in the partial adjustment models. Existing research finds that OLS estimates should be used when the number of time periods is small relative to the number of panels (Beck and Katz 1995).

This study examines the effect of unionization and labor-management cooperation on the ease of hospital restructuring through a partial adjustment model with a lagged dependent variable. To examine the role of unionization and labor-management cooperation on hospital staffing adjustment, this study includes interaction variables between these measures and the lagged dependent variable.

Analyses on hospital financial performance are conducted through a fixed-effects model. A fixed-effects model controls for unmeasured hospital variation and focuses on the unique effect of the independent variables in the analysis.

BIBLIOGRAPHY

Aiken, Linda, and J. Hadley. 1988. Factors affecting the hospital employment of registered nurses. *The Secretary's Commission on Nursing. Final Report Vol. 2.* Washington, D.C.: U.S. Department of Health and Human Services.

Bailey, Thomas. 1992. "Discretionary effort and the organization of work: Employee participation and work reform since Hawthorne." Sloan Foundation. Photocopy report.

Baker, Laurence. 1993. *Can Managed Care Control Health Care Costs? Evidence From the Medicare Experience.* Princeton, N.J.: Princeton University.

Bureau of Labor Statistics. 1995. *Tabulations Developed for Institutes of Medicine Report on the Adequacy of Nurse Staffing in Hospitals and Nursing Homes.* Washington, D.C.: U.S. Department of Labor.

Carter, Grace, J. Newhouse, and D. Relles. 1990. How much change in the case mix index is DRG creep? *Journal of Health Economics.* Vol. 9, pp. 411-28.

Commission on the Future of Worker-Management Relations. 1994. *Fact Finding Report.* U.S. Department of Labor and U.S. Department of Commerce. Washington, D.C.: U.S. Government Printing Office.

Congressional Budget Office. 1995. "The effects of managed care and managed competition." Washington, D.C., CBO Memorandum.

Dowd, Bryan. 1986. HMOs and Twin Cities admission rates. *Health Services Research.* Vol. 21, No. 2, pp. 177-88.

Eaton, Adrienne, and Paula Voos. 1992. "Unions and contemporary innovations in work organization, compensation, and employee participation." In Lawrence Mishel, ed., *Unions and Economic Competitiveness.* Economic Policy Institute series. Armonk, N.Y.: M.E. Sharpe.

Feldman, R., B. Dowd, A. Johnson, et al. 1986. The competitive impact of HMOs on hospital finances. *Journal of Health Policy, Politics, and Law.* Vol. 19, No. 4, pp. 675-97.

Freeman, Richard, and James Medoff. 1984. *What Do Unions Do?* New York: Basic Books.

Frost, Ann. 1997. *The Role of Local Unions in Workplace Restructuring: Evidence From the North American Integrated Steel Industry.* Cambridge, Mass.: MIT. Ph.D. Thesis.

Gittell, Jody Hoffer. 1996. "Coordination, control, and performance of interdependent work processes." Working Paper No. 96-042. Boston, Mass.: Harvard Business School

Greene, B. 1990. *Econometric Analysis.* New York: MacMillan.

Health and Human Services Department. 1998 (forthcoming). National health expenditures, 1996. *Healthcare Financing Review.* Press Release.

Health, United States. 1995. *<www.cdc.gov/nchswww/fast:afs/hinsure.htm.>*

Hirschhorn, Larry. 1994. *The Political Economy of Nursing.* Philadelphia, Pa.: Center for Applied Research.

Ichniowski, Casey, Thomas A. Kochan, David Levine, Craig Olson, and George Strauss. 1996. What works at work: Overview and assessment. *Industrial Relations.* Vol. 35, No. 3, pp. 299-333.

Industry Wage Survey. 1989. *Hospitals and Nursing Homes.* Washington, D.C.: Bureau of Labor Statistics.

Institute of Medicine. 1996. *Nursing Staff in Hospitals and Nursing Homes: Is it Adequate?* Washington D.C.: National Academy Press.

Kralewski, J., D. Countryman, and D. Shatin. 1982. Patterns of interrelationships between hospitals and HMOs. *Inquiry.* Vol. 19, No. 4, pp. 357-62.

Lawrence, Paul, and Jay Lorsch. 1968. *Organization and Environment: Managing Differentiation and Integration.* Boston, Mass.: Graduate School of Business Administration, Harvard University.

Luft, S., H. Maerki, and J. Trauner. 1986. The competitive effects of health maintenance organizations: Another look at the evidence from Hawaii, Rochester, and Minneapolis/St. Paul. *Journal of Health Policy, Politics, and Law.* Vol. 10, No. 4, pp. 625-57.

Miller, Richard, B. Becker, and E. Krinsky. 1979. *The Impact of Collective Bargaining on Hospitals.* New York: Praeger.

Office of the Assistant Secretary of Health. 1994. *Registered Nurse Chart Book.* Washington, D.C.: OASH, U.S. Department of Health and Human Services.

Office of Technology Assessment. 1994. *Managed Care and Competitive Health Care Markets: The Twin Cities Experiences.* OTA-BP-H-130. Washington, D.C.: U.S. Government Printing Office.

Prism. 1995. *Engineering and Management Shook Hands and Came Out Partners.* United Hospital. Minneapolis-St. Paul.

Reverby, Susan M., 1987. "Ordered to Care: The Dilemma of American Nursing 1850-1945." Cambridge, Mass.: Cambridge University Press.

Rubenstein. 1996. "Saturn, the GM/UAW partnership: The impact of co-management and joint governance on firm and local union performance." Sloan School of Management. Dissertation.

U.S. Industrial Outlook. 1994. *Forecasts for Selected Manufacturing and Service Industries.* Washington, D.C.: U.S. Government Printing Office.

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