

Nursing Staff Trends in California Hospitals: 1977 Through 1995

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October 1996

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Foreword

Increasing competition among providers continues to be a central issue in the public policy debate surrounding health-care reform. California has been a leader in encouraging the growth of Health Maintenance Organizations and Preferred Provider Organizations, and this changing landscape of health-care financing has affected the operations of hospitals, the organization of primary care, and perceptions about the quality of care provided. This study by Joanne Spetz seeks to clarify one element in this changing environment: whether there has been a change in the number of hours worked by hospital nursing personnel.

This Background Paper, the first in a series by the Public Policy Institute of California (PPIC), expands upon the author's Ph.D. dissertation in economics. The paper examines hospital use of nursing personnel from the late 1970s through 1995, using data from California's Office of Statewide Health Planning and Development. The study finds that there has been a steady increase in the number of hours worked by nursing personnel over the past eighteen years. Most of the growth resulted from an increase in the number of hours worked by registered nurses; the use of licensed vocational nurses and nursing aides has declined or remained stable. In addition to total hours, the hours worked by nursing personnel per hospital discharge and per patient day have risen, indicating that more nursing resources are serving patients admitted to hospitals in California. The author concludes the paper with a discussion of the possible explanations for and implications of

her findings. Through this and other analyses, PPIC hopes to better inform the health-care debate in California.

The author wishes to thank California's Office of Statewide Planning and Development for providing the data used in this research. She appreciates comments provided by Linda Aiken, Janet Bostrom, Peter Buerhaus, Janet Coffman, Tenzing Donyo, Mike Dardia, Ed Feasel, Ruth Given, Elizabeth Hill, Deloras Jones, Harold Luft, Tom MaCurdy, Margaret O'Brien-Strain, Ed O'Neil, Ciaran Phibbs, Dan Rabovsky, and seminar participants at Stanford University. Financial support was provided by the National Science Foundation and the Bradley Foundation (through the Center for Economic Policy Research) for the dissertation work that preceded this report. Useful suggestions from John Pencavel, Anne Royalty, Victor Fuchs, Ciaran Phibbs, and Laurence Baker on the dissertation work are appreciated. Pamela Pommerenke, Dylan Supina, and Paul Liu provided data assistance at various times during the dissertation research. Rod Pedersen provided excellent research assistance at PPIC. While this paper reflects the contributions of many people, the author is solely responsible for its contents.

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Nursing Staff Trends in California Hospitals: 1977 Through 1995

Introduction and Overview

There is growing concern about the effect of Health Maintenance Organizations (HMOs) and Preferred Provider Organizations (PPOs) on the staffing of nursing personnel in California's hospitals.¹ Recent newspaper articles have claimed that hospitals are reducing their use of Registered Nurses (RNs) and other nursing personnel because of rising price competition, and there is a growing fear that such changes in hospital staffing will reduce the quality of care (Shuit, 1996).

In response to perceived employment reductions, there have been legislative efforts to regulate hospital staffing of nurses and other personnel. Several bills have been introduced in California's legislature to mandate minimum staffing levels.² Propositions 214 and 216 on the November 1996 ballot propose new regulations for the insurance and health industries, including the establishment of minimum staffing requirements for hospitals and other health facilities (Legislative Analyst's Office, 1996).

¹"Nursing personnel" refers to Registered Nurses, Licensed Vocational Nurses, and nursing aides.

²For example, Senate Bill 1079 was proposed by Diane Watson in 1993, and Assembly Bill 1445 was introduced by Jackie Speier in 1993. Both were amended significantly before coming to a vote. S.B. 1079 was vetoed by Governor Wilson, and A.B. 1445 was not reported out of the Senate Committee on Health and Human Services. Proposed revisions to California's hospital licensing standards would add a minimum staffing requirement.

This background paper provides information about the use of nursing personnel in California's short-term general hospitals from 1977 through 1995. Data from California's Office of Statewide Health Planning and Development indicate that the average number of hours worked by nursing personnel in short-term general hospitals rose from 1977 to 1995 despite a recent decrease in the number of hospital discharges. Registered Nurses were responsible for a larger share of the hours worked by nursing personnel in 1995 than in 1977. Total nursing personnel hours per patient day rose through 1995, as did the hours worked by RNs per patient day. Nursing service hours per discharge declined slightly between 1994 and 1995, probably because of a reduction in the average length of patients' hospital stays. These findings do not change with standard adjustments for differences in the severity of illness among patients. Thus, there does not appear to have been a reduction in the quantity of nursing services available to patients over the past two decades.

The Competitive Hospital Marketplace

During the 1980s, the health-care system of the United States experienced significant changes. Many states passed laws that relaxed restrictions on the ability of insurance companies to influence patients' choices of their care providers, thus permitting "selective contracting." California was one of the first states to pass such a law; selective contracting legislation was implemented in California in January 1983. Previously, strict regulation prohibited interference with a patient's choice of medical provider and restricted insurers from excluding providers from reimbursement.³ California's law permitted insurers to negotiate with health-care providers (physicians, hospitals, and other care facilities) for lower prices in exchange for providing incentives to patients to select "preferred providers" for care. The 1983 law encouraged care providers to compete for agreements with insurers by reducing prices.

Two mechanisms for contracting between insurers and providers grew rapidly as a result of the California legislation: Preferred Provider Organizations (PPOs), which use their power as insurers of large numbers of people to negotiate discounts with medical-care providers, and Health Maintenance Organizations (HMOs), which centrally manage

³Some HMOs were exempt from this restriction.

the care of those they insure and pay a flat fee to hospitals and physicians to provide this care. In addition, California's selective contracting legislation allowed Medi-Cal, the state Medicaid program, to contract with hospitals. Over 12 million Californians were enrolled in HMOs and PPOs in 1994 (Enthoven and Singer, 1996).

With traditional health insurance, physicians and hospitals are reimbursed for costs incurred in the treatment of a patient. In contrast, PPOs and HMOs usually establish contracts that fix payment levels in advance of provision of medical care. If a patient's care costs less than the contracted price, the hospital or physician retains the difference; if the patient's health care costs more than the insurer agreed to pay in the contract, the care provider assumes the liability. Some PPOs seek discounts on the usual fee-for-service rates of physicians and hospitals rather than determining payments prospectively. HMOs and PPOs can provide financial incentives to physicians to reduce the use of medical care, and they also might employ "utilization review" managers to explicitly limit patient use of some medical services.

PPOs and HMOs were not the only innovations in health-care financing in the early 1980s. The federal government changed its method of paying hospitals for the care of Medicare enrollees in the Social Security amendments of 1983. Prior to 1983, nearly all Medicare payments were made on a fee-for-service basis, like most health insurance. Under the Prospective Payment System (PPS), the Health Care Financing Administration (HCFA) established payment levels for each of about 480 Diagnosis-Related Groups (DRGs). As with many HMOs, hospitals earn money if their costs for treatment are below the predetermined payment level. PPS and selective contracting legislation gave hospitals a strong incentive to reduce the cost of patient care.

Selective contracting legislation and the introduction of PPS also caused many changes in hospital care, some of which have been documented extensively: fewer inpatient admissions, lower average lengths of hospital stays, and a more severely ill patient population (Dranove, Shanley, and White, 1993; Goldfarb and Coffey, 1992; Hodgkin and McGuire, 1994; Keeler et al., 1990; Melnick and Zwanziger, 1988; Zwanziger and Melnick, 1988). HMOs and PPOs try to avoid expensive hospitalizations by using ambulatory surgery and nonsurgical treatments when possible; as a result, many hospitals have altered the quantity and types of services they provide.

Levels of Nursing Personnel Employment

Nursing labor consists of three skill categories: Registered Nurses (RNs), Licensed Vocational Nurses (LVNs), and nursing aides. RNs must have at least two years of post-secondary nursing education before they can obtain a license in the state in which they practice. LVNs can be licensed after one to two years of post-secondary nursing education. They are legally permitted to perform many of the same tasks as RNs but are not authorized to undertake certain functions such as administering intravenous medications and “assessing” patients.⁴ Nursing aides (also called “orderlies” or “unlicensed assistive personnel”) are the lowest-skilled category of nursing labor, providing basic support in the care of patients. They are not required to have special training or to be licensed.⁵

The use of nursing personnel can be measured in several ways: the total number of nursing personnel employed; the hours worked by nursing personnel; numbers of nursing personnel at each licensure level; and the percentage of RNs in total nurse staffing (“skill mix”). Nursing personnel can be compared with the number of discharges or patient days in a hospital to control for changes in the use of nursing personnel caused by changes in the amount of hospital care. In 1948, the National League for Nursing Education recommended that the adequacy of nursing care be defined by the number of nursing hours worked per patient day (Friss, 1994).⁶ Since that report, most hospital managers have focused on nursing hours or employment per available bed, occupied bed, patient day, or discharge.

This paper examines hospital use of nursing personnel as reported to California’s Office of Statewide Health Planning and Development (OSHPD). OSHPD collects data on the state’s hospitals each year through its *Hospital Disclosure Report*, a survey that gathers data on service provision, finances, and resource utilization in a hospital’s fiscal year. The data include information about the number of hours worked by category of worker and about the provision of medical care in each revenue unit of the hospital (e.g.,

⁴LVNs can obtain data about patients but cannot evaluate patients’ needs for care.

⁵Some hospitals require that these unlicensed personnel obtain Certified Nursing Assistant credentials.

⁶The League determined that the appropriate level was 3.5 total hours per day, with RNs making up two-thirds of this total. Changes in patient care have outdated this level of staffing.

intensive-care unit, laboratory services, medical-surgical unit).⁷ OSHPD also collects *Patient Discharge Data*, which contain abstracts of every inpatient discharge in a calendar year. OSHPD audits survey responses for consistency, and many hospitals use accounting systems that automatically produce reports for OSHPD at the end of the fiscal year.

The data used in this study are from short-term general hospitals that completed OSHPD's *Hospital Disclosure Report* in any year from 1976–1977 to 1994–1995.⁸ Not every hospital is observed over the entire time period; some hospitals closed, some opened, and others changed their reporting calendar and thus missed a year of the survey.⁹ None of the Kaiser Foundation Hospitals in California reported labor data, so they are not included in this sample.¹⁰ Federal hospitals, including Department of Veterans Affairs Medical Centers, also do not report to OSHPD.¹¹ There were 516 short-term general hospitals listed in the OSHPD data in 1977; there were only 416 in 1995. Response rates to the survey range from 93 percent to 95 percent.

Figure 1 presents the average number of hours worked by nursing personnel per hospital in California from 1977 to 1995.¹² The average number of hours rose from 1977 to 1993 and was stable from 1993 to 1995.¹³ The hours worked by RNs increased significantly over this period, although growth in RN hours has slowed in recent years. In contrast, the hours worked by LVNs and aides dropped after 1983. The use of aides has recovered in the past eight years, but LVN use is still below its 1983 peak.

⁷These data also contain information about capital acquisition, finances, and other hospital attributes and behaviors.

⁸Children's, psychiatric, specialty, and long-term hospitals are excluded from this analysis.

⁹Each survey collects data for hospital fiscal years ending during a given 12-month period. For instance, the 1994–1995 survey contains data for hospital fiscal years ending between July 1994 and June 1995.

¹⁰Kaiser hospitals treat about 9 percent of patients discharged in California. Data provided by Kaiser Permanente's Northern California office indicate that Kaiser's Northern California hospitals follow the statewide patterns presented here. Thus, the data used for this report do not appear to be biased by the omission of the data from Kaiser.

¹¹Federal staffing levels are set by the federal government, and thus are not likely to be affected by health-care competition in the same way as nonfederal hospitals.

¹²The number of nurses employed might not follow the same pattern as the number of hours worked. An increase in the number of hours worked per hospital may represent an increase in the number of hours worked by currently employed nursing staff, rather than an increase in the number of nursing personnel employed.

¹³Of course, the number of hours worked by nursing personnel has risen in some hospitals and declined in others.

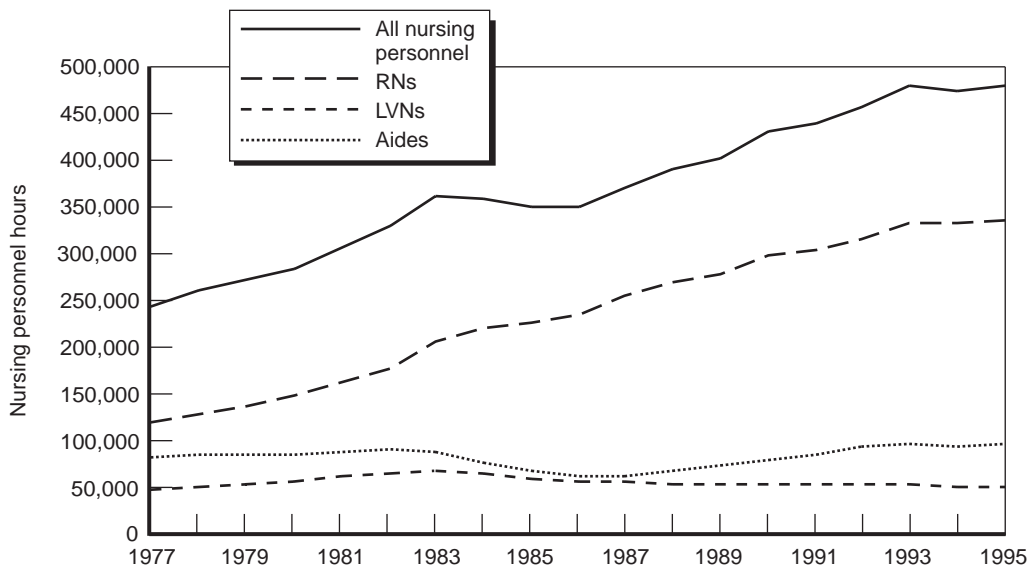


Figure 1—Average Hours Worked by Nursing Personnel per Hospital in California, 1977–1995

The average number of hours worked by nursing personnel does not follow the same pattern in all units within hospitals. The use of nursing personnel in acute-care inpatient units has been relatively stable since 1983, fluctuating between an average of 185,000 and 217,000 hours per hospital (Figure 2). The average number of hours worked by RNs per hospital declined slightly from 1993 to 1995 in acute-care units, after more than doubling between 1977 and 1993. After 1983, LVN and aide hours decreased more in acute-care units than in hospitals as a whole, and the number of hours worked by aides has not returned to pre-1983 levels.¹⁴

Changes in nursing skill mix contributed to rising costs for nursing labor in California’s hospitals. Average expenditures per hospital on nursing labor were over \$12 million in 1995 (in 1995 inflation-adjusted dollars) and have risen continuously since the late 1970s (see Figure 3).¹⁵ This cost growth is almost entirely a result of increases in

¹⁴Nursing personnel use in all inpatient units follows the same pattern as in the whole hospital (which includes ambulatory care and ancillary service units), and the pattern of hours worked in medical-surgical units is similar to all acute-care units. These data are available from the author.

¹⁵Prices are deflated by the Consumer Price Index. Adjustments made using other indices, including health-care-specific indices, produced comparisons similar to those discussed here.

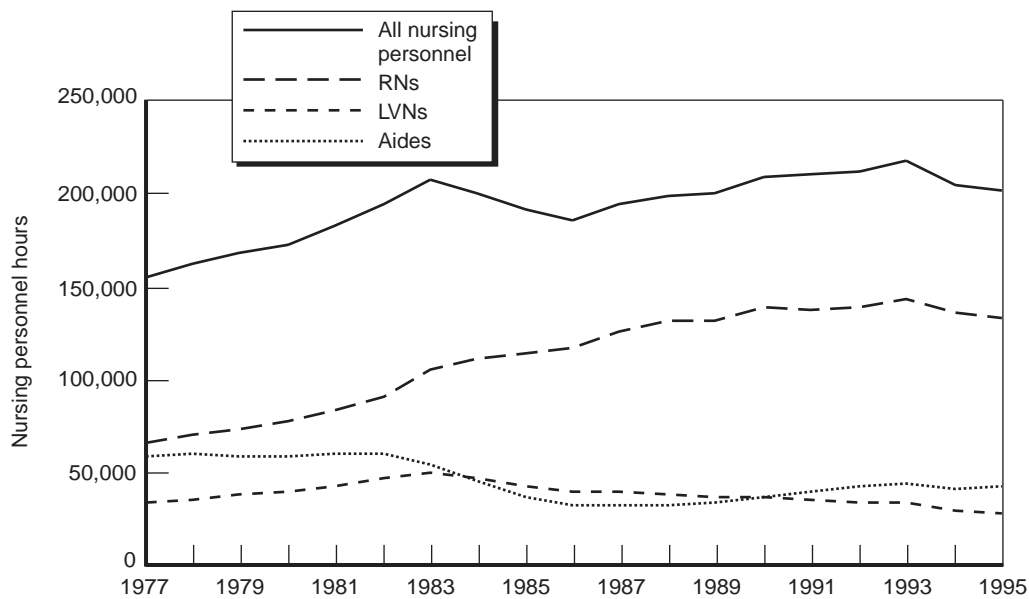


Figure 2—Average Hours Worked by Nursing Personnel in Acute-Care Units per Hospital in California, 1977–1995

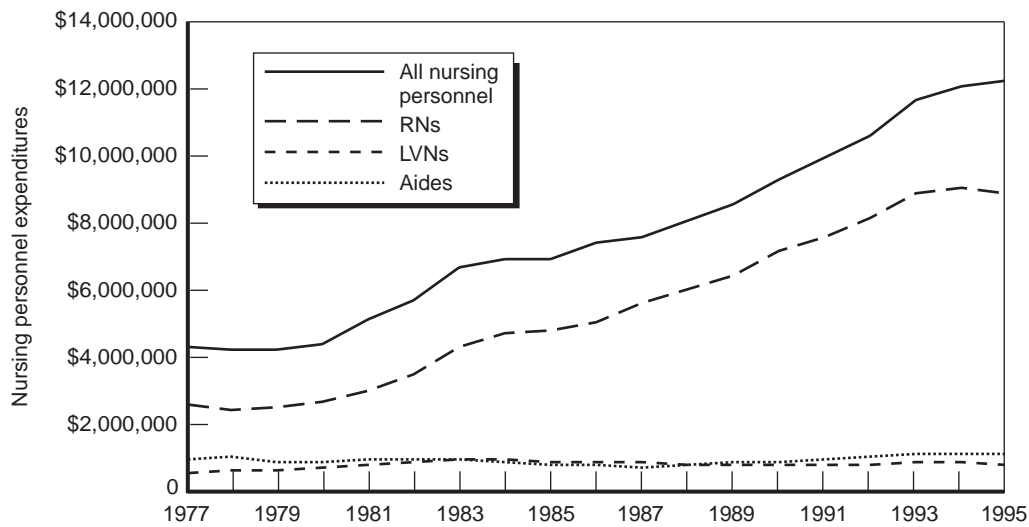


Figure 3—Average Expenditures on Nursing Personnel per Hospital in California, 1977–1995

spending on RN labor. Although expenditures on nurses are rising, nursing's share of total hospital expenses declined from 48 percent in 1977 to 16 percent in 1995.¹⁶

Why Did Nursing Employment Rise?

The increase in nursing service personnel hours and skill mix since 1977 should be compared with changes in the number of patients treated in inpatient units, the severity of patients' illnesses, and the wages of nursing service personnel. Each of these factors can affect RN, LVN, and aide use.

Patient Discharges and Days

The growth of managed care and selective contracting has reduced the use of inpatient hospital care. Figure 4 presents the average number of inpatient discharges per hospital in California. There has been a marked decline in the quantity of inpatient hospital care in the past five years, with average discharges per hospital dropping 12.4 percent between 1991 and 1995. The average number of days of patient care per hospital

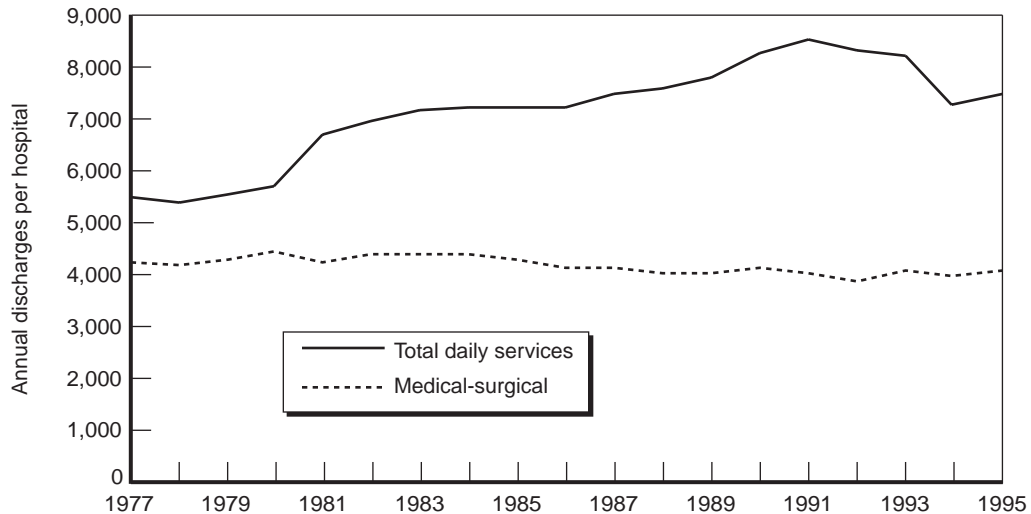


Figure 4—Average Discharges per Hospital in California, 1977–1995

¹⁶Author's calculation from OSHPD data. Even with the decline in nursing personnel's share of hospital expenditures, nursing services comprise the single largest item in most hospitals' budget.

has declined even more sharply (Figure 5). In 1995, the average number of days of care was 25 percent lower than in 1991.

The number of hours worked by nursing personnel can be directly compared with the number of patient days and discharges. As seen in Figure 6, the average number of hours worked by nursing personnel per patient day rose continuously from 1977 through 1995. Most of this growth was caused by an increase in the number of hours worked by RNs. In 1977, RNs worked about 4 hours per patient day; in 1995, RNs were employed an average of over 8 hours per patient day. Average nursing service hours per discharge follow a similar pattern, as seen in Figure 7. From 1993 to 1995, the increase in nursing service hours per discharge was smaller than the rise in hours per patient day. This is because the number of patient days fell faster than discharges as the average length of inpatient hospital stays declined (Figure 8).

Some of the growth in hours worked by nursing personnel per patient day may have resulted from increases in the use of nursing personnel in ancillary and ambulatory-care units rather than in inpatient care units. This might be particularly relevant to RN employment. As hospitals have developed ambulatory surgery units and other specialized patient services, they have favored employing RNs in these departments. RN education includes some training in management, human behavior, and other skills that qualify RNs

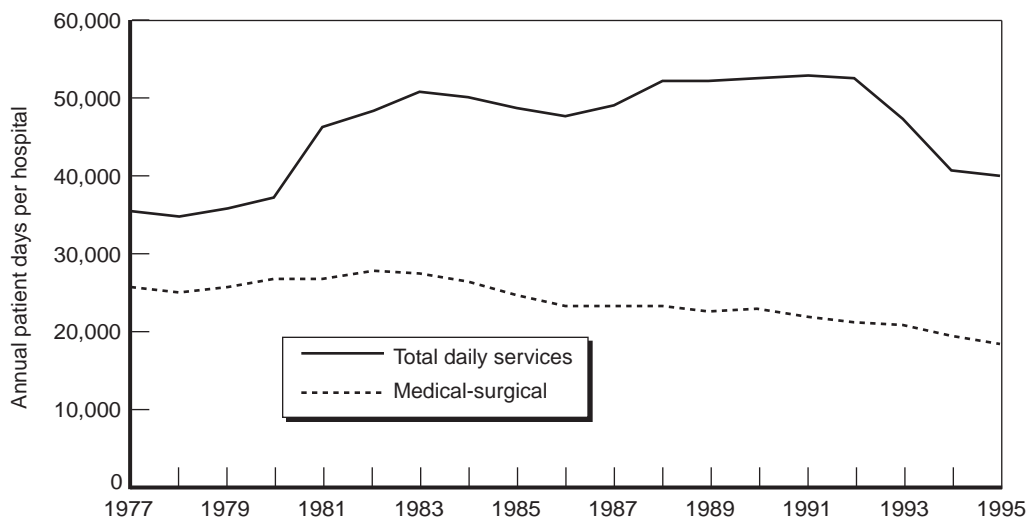


Figure 5—Average Patient Days per Hospital in California, 1977–1995

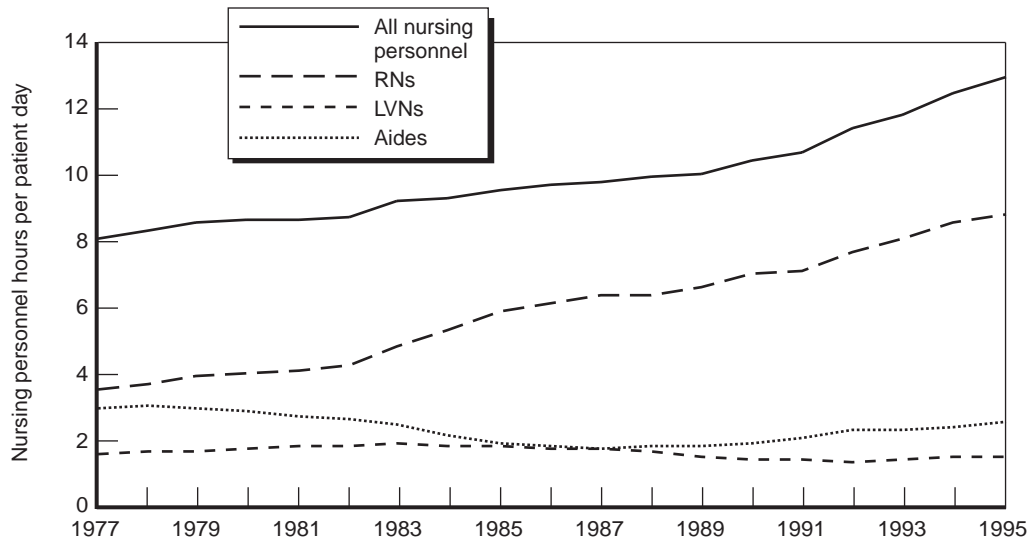


Figure 6—Average Nursing Personnel Hours per Patient Day in California Hospitals, 1977–1995

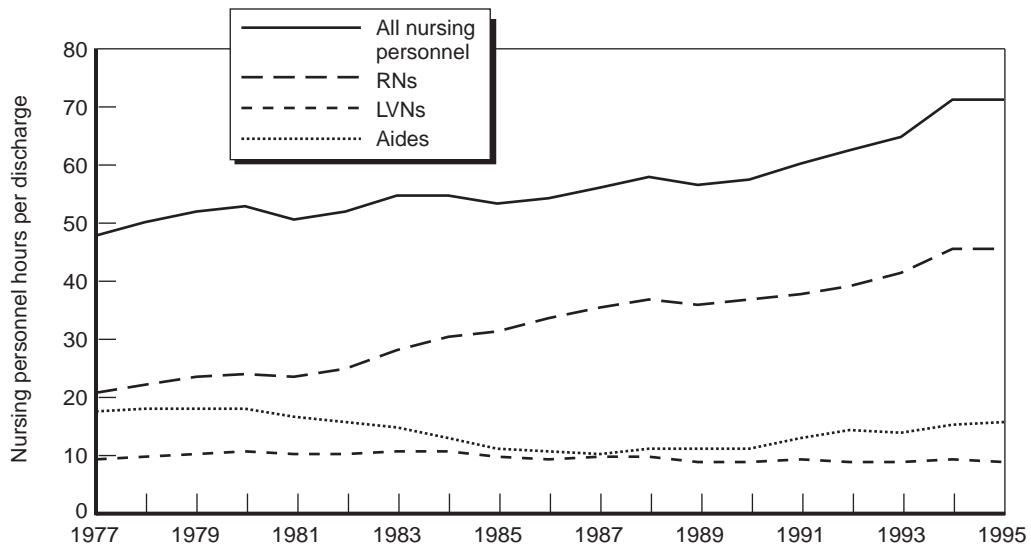


Figure 7—Average Nursing Personnel Hours per Discharge in California Hospitals, 1977–1995

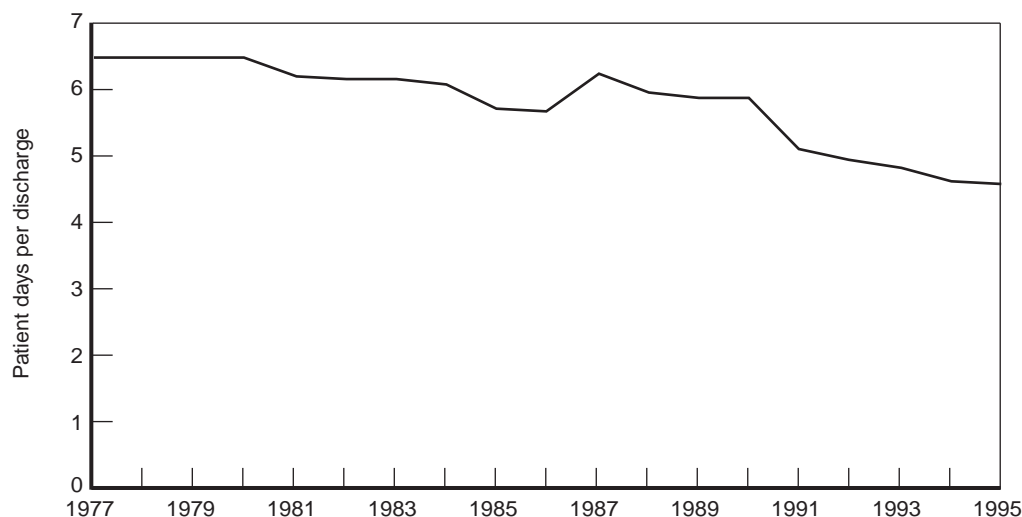


Figure 8—Average Length of Stay in California Hospitals, 1977–1995

for case management, patient teaching, and other responsibilities (Wunderlich, Sloan, and Davis, 1996). However, the growth in RN employment cannot be attributed solely to increasing use of ambulatory and specialized hospital services. The average number of RN hours per patient day in medical-surgical inpatient units rose from 1981 through 1995 (see Figure 9). Average nursing personnel hours per medical-surgical discharge rose slightly from 1984 to 1994 and fell between 1994 and 1995 (Figure 10). This drop in nursing personnel hours per discharge was composed of declines per discharge in all three types of nursing personnel.¹⁷ The drop in the average length of stay of patients' stays caused nursing personnel hours per discharge to decline while hours per day rose.

Changes in Care Provided by Hospitals

Changes in the quantity of hospital care have been accompanied by changes in the types of patients being treated. Ambulatory-care settings are providing care for less-ill patients; thus, those who are admitted to hospitals for inpatient care are sicker on average than in previous decades (Keeler et al., 1990). In response to competitive pressures,

¹⁷The pattern of nursing personnel hours per patient day in all acute-care units is similar to that in medical-surgical units. Before 1981 the number of acute-care discharges cannot be isolated from total discharges. Hours worked by nursing personnel in inpatient units follow a pattern similar to total hospital hours (see Figures 6 and 7).

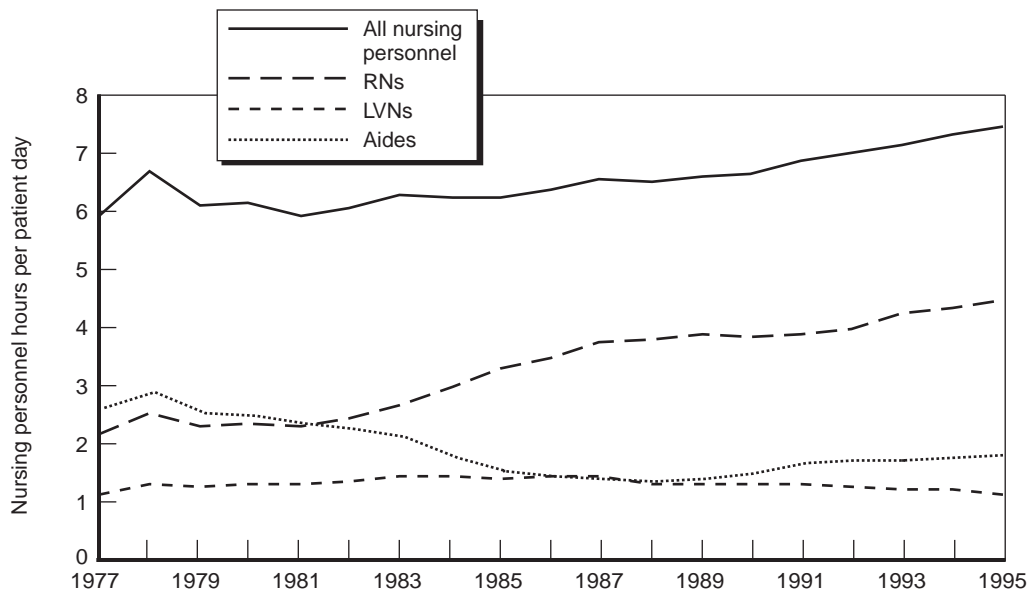


Figure 9—Average Nursing Personnel Hours per Patient Day in Medical-Surgical Units in California Hospitals, 1977–1995

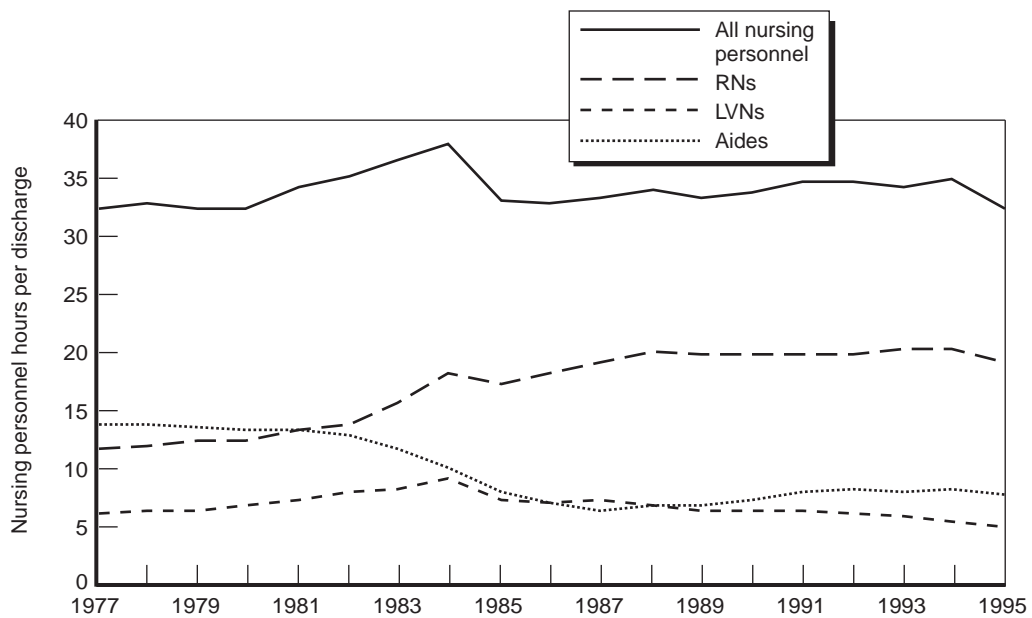


Figure 10—Average Nursing Personnel Hours per Discharge in Medical-Surgical Units in California Hospitals, 1977–1995

hospitals have sought to reduce the length of stay of those they admit in order to reduce the cost of providing recuperative care. This has led to a notable reduction in the number of patient days of hospital care and an increase in the average severity of the illnesses of patients in inpatient units.

The average severity of patients' illnesses can be measured by the "case-mix index" (CMI). Each of the DRGs in Medicare's Prospective Payment System is assigned a weight, with an average-cost diagnosis having a weight of 1. The average of the DRG weights of a hospital's discharges is the case-mix index. For this paper, hospital CMIs were computed using OSHPD's *Patient Discharge Data* from 1984 through 1995. Hospitals with sicker-than-average patients have a CMI greater than 1; those with less-ill patients have a CMI below 1. The number of case-mix-adjusted discharges at a hospital equals the number of discharges multiplied by the hospital's CMI.¹⁸

The number of nursing personnel hours per case-mix-adjusted discharge rose from 1985 to 1994 and declined slightly between 1994 and 1995 (see Figure 11). Changes in the number of RN hours per adjusted discharge explain most of this pattern. Average nursing personnel hours per case-mix-adjusted patient day rose from 1985 through 1995, and RN hours per adjusted patient day rose throughout this period (Figure 12). LVN use declined between 1984 and 1995, while aide hours per adjusted patient day rose from 1987 to 1992 and remained stable after 1992. A similar pattern is seen in acute-care inpatient units (Figure 13). Nursing personnel hours per adjusted acute-care patient day were higher in 1995 than in 1984, although growth in hours slowed from 1992 to 1995.

The case-mix index does not fully explain changes in patient care that may have occurred with the growth of selective contracting. For example, the shorter average lengths of stay observed in hospitals may be changing the demand for nurses. As hospitals have reduced the average length of patients' stays, they have eliminated some of the recuperative services provided to patients; there are fewer meals to be served, fewer bedpans to change, and fewer patients to move. Aides and other unlicensed nursing staff

¹⁸DRGs are not available in the *Patient Discharge Data* before 1984. DRG definitions change slightly each year, and HCFA updates DRG weights annually. This paper does not attempt to standardize DRG definitions across surveys. To compare the severity of patients' illnesses across hospitals *and* across time, one must use the same weights for every year of data. The findings presented in this paper use the 1989 DRG weights. The results are similar if the 1985 weights are used. Older weights will underestimate the effect of new, expensive treatments on hospitals' case mixes. Similarly, newer weights will overestimate this effect.

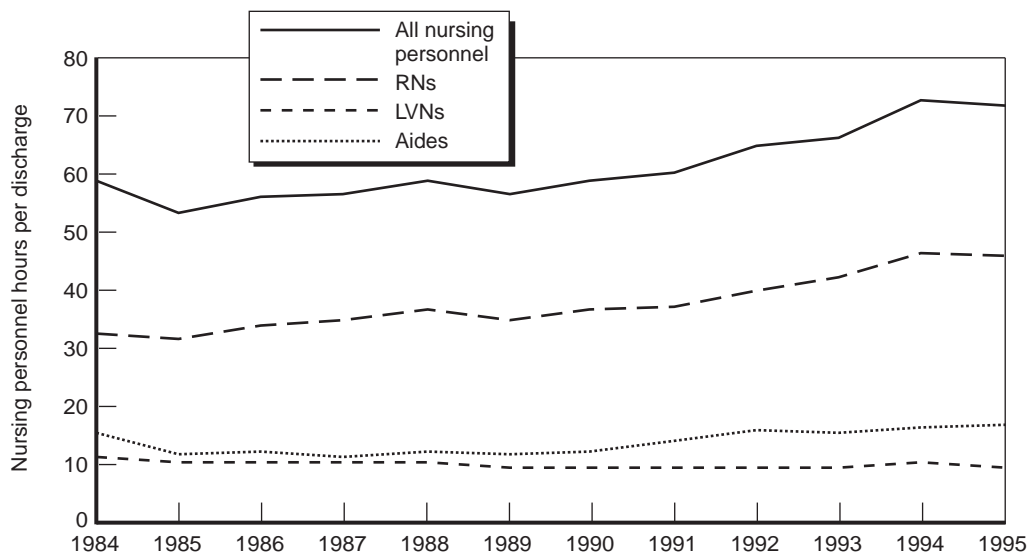


Figure 11—Average Nursing Personnel Hours per Case-Mix-Adjusted Discharge in California Hospitals, 1984–1995

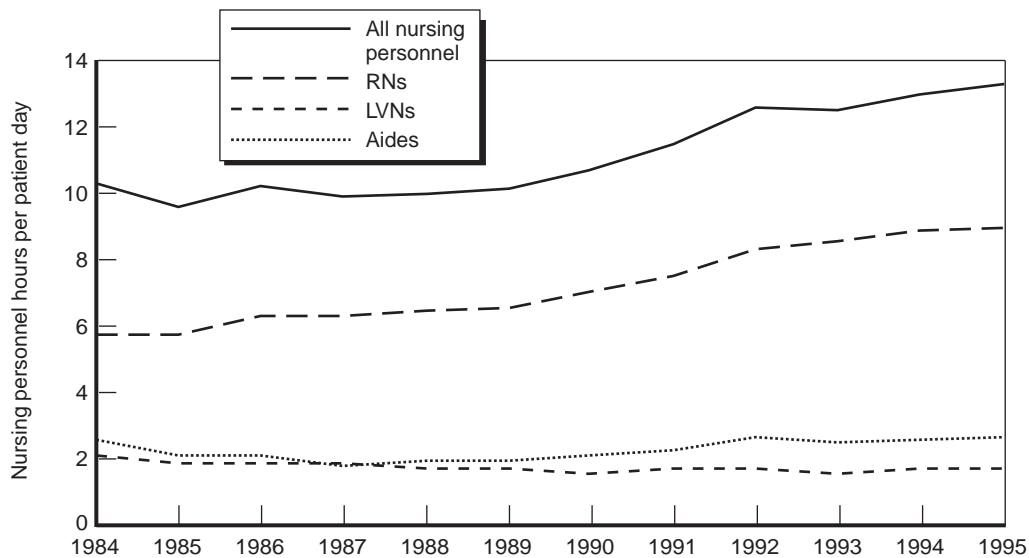


Figure 12—Average Nursing Personnel Hours per Case-Mix-Adjusted Patient Day in California Hospitals, 1984–1995

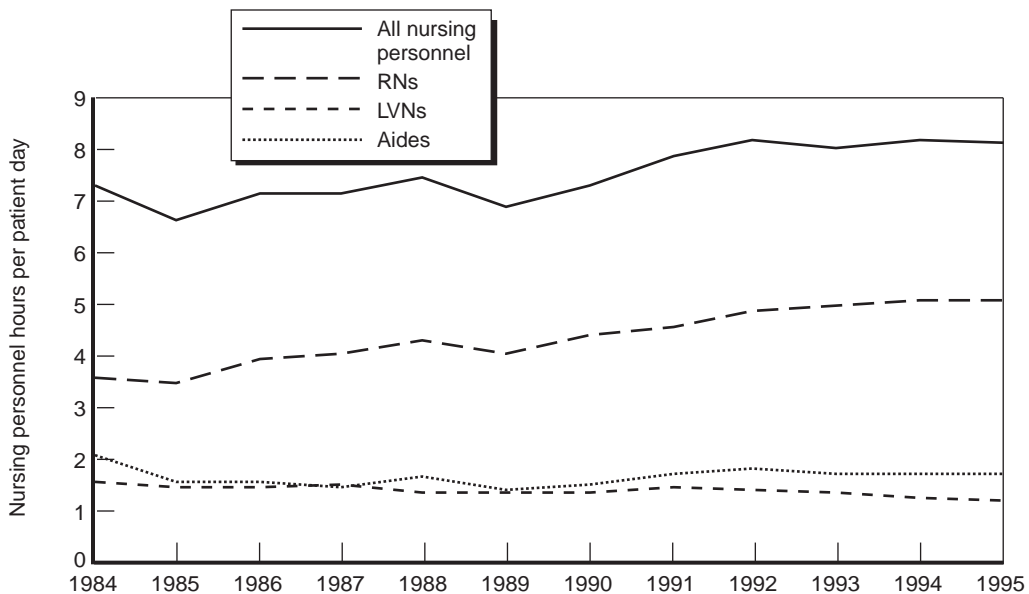


Figure 13—Average Nursing Personnel Hours per Case-Mix-Adjusted Patient Day in Acute-Care Units, California Hospitals, 1984–1995

are best suited to these tasks. The shorter average length of stay also has led to an increased intensity of care provided each day of a patient’s stay. The need for RNs may be higher because of this. Joyce Johnson’s (1988) analysis of studies of RN training found some evidence that baccalaureate-educated RNs are better able to perform tasks involving “professional education and practice.” To the extent that this is the case, it is likely that RNs are well suited to the increasing patient-care management and staff leadership responsibilities of nursing personnel (Pew Health Professions Commission, 1995; Wunderlich, Sloan, and Davis, 1996).

The continued improvement of medical technology also may have contributed to the growth in RN staffing. Many medical devices and techniques require a high level of skill to be used effectively. RNs are trained in the use of different technologies and may be able to learn new techniques on the job more quickly than other personnel. Bartel and Lichtenberg (1987) found evidence that more-educated workers are better able to adapt to new production processes and advances in technology. Thus, RNs may be favored by hospitals in times of technological change.

The Impact of Wages

Increases in the wages of nursing personnel can cause a decline in demand for their labor. Average wages of skilled nurses have risen more quickly than those of less-skilled nurses (see Figure 14); RN wages grew from \$17.54 per hour in 1977 to \$25.08 per hour in 1995 (in 1995 dollars), LVN wages rose from \$12.49 per hour to \$15.47 per hour, and aide wages stayed relatively stable, dropping from \$10.52 per hour to \$10.50 per hour. The wages of nursing personnel dropped between 1994 and 1995—the first decrease in inflation-adjusted RN wages in almost 20 years.

Periods of wage increases are not anomalous in the market for RNs. Labor shortages often are marked by increases in wages, as employers bid for a limited supply of workers. There have been reports of RN shortages almost continuously since the 1940s; the most recent shortage was reported in the mid to late 1980s (Buerhaus, 1993). This may have driven the average annual wage increase of 2.4 percent over the rate of inflation from 1977 to 1994 in California. By the early 1990s, nurse administrators began to report that the RN shortage had abated.

Recent studies have noted that shortages of RNs may arise from changes in the wages of RNs relative to those of other nursing personnel (Buerhaus, 1993; Aiken and Mullinix, 1987; Fagin, 1988). Nursing personnel with different skills can substitute for each other

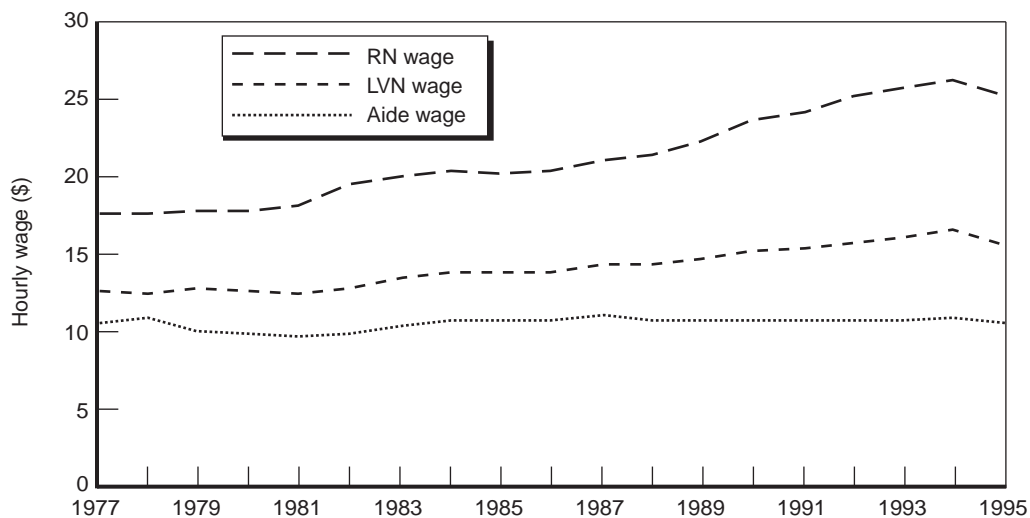


Figure 14—Average Hourly Wages Paid to Nursing Personnel in California Hospitals, 1977–1995

in many capacities. When the wages of RNs and other nursing personnel are relatively close to each other, hospitals may elect to hire RNs because the extra cost is low relative to the additional skills the RN provides. As demand for RNs increases, their wages are likely to rise, making LVNs and aides more attractive; hospitals again will adjust their skill mix. In 1977, RNs were paid 40 percent more than LVNs and 67 percent more than aides. By 1995, these differences were 62 percent and 239 percent. This widening gap should make RNs less attractive than other nursing personnel; it would not be surprising to see hospitals substituting these personnel in the future.

Controlling for Other Factors

The author of this report conducted multivariate econometric analyses of nursing employment (Spetz, 1996). Controls for changes in the number of discharges, the case mix of patients, the level of technology, and the wages of nurses did not change the patterns of employment discussed in this paper.

Is Nursing Personnel Use Changing?

There are widespread claims that hospitals are changing their use of nursing personnel. Several newspaper articles have reported perceived declines in nurse staffing in California hospitals (e.g., Shuit, 1996). The data examined in this study indicate that the average number of hours worked by nursing personnel per hospital has been stable since 1993. Whether there will be a decline in the future remains to be seen. However, it would not be surprising if nursing personnel hours per hospital dropped as a result of the decreases in discharges and patient days observed in the 1990s.

Over 30 nursing and health-care organizations have formed the California Strategic Planning Committee for Nursing (CSPCN) to assess nursing personnel needs in the state. In 1995, CSPCN conducted a survey of 104 acute-care hospitals and other health-care employers to develop projections of the demand for nursing personnel (California Strategic Planning Committee for Nursing, 1996). The average projected full-time equivalent (FTE) employment of RNs in 1998 is 3.7 percent lower than actual FTE employment in 1995. CSPCN expects a 3.3 percent drop in average LVN FTE employment, and the average employment of nursing aides is expected to rise 10 percent.

Nearly half of the respondents expect a decline in the number of patients they care for by 1998.¹⁹

Concerns about possible declines in nurse staffing have risen despite the continued growth of hours worked by nursing personnel. These concerns may be fueled by several factors. First, nursing personnel employment grew more slowly between 1993 and 1995 than before 1993, and it declined from 1993 to 1995 in acute-care units. While growth in the number of hours worked by nursing personnel slowed, the average length of hospital stays dropped from 5.8 to 4.5 days. The lower average length of stay is likely to have increased the intensity of care provided to patients during their hospital stays. The lack of a significant increase in hospital use of nursing personnel while care intensity rose may be a cause of the perception that employment is dropping.

Some hospitals have engaged in highly publicized “restructuring” of their nursing services, possibly contributing to insecurity among hospital employees. The recent decline in RN, LVN, and aide wages is likely to add to the perception that the use of nursing personnel is dropping. Finally, there was an 18.6 percent rise in the number of graduates from basic RN training programs between 1988–1989 and 1993–1994 (National League for Nursing, 1995). These new graduates are entering a market with slower growth of RN positions, and they may find it more difficult to obtain employment in hospitals than they expected.²⁰

Skill Mix and Quality of Care

Discussions of skill mix and staffing levels often turn to the question of how the quality of patient care is affected by nursing personnel use. The Institute of Medicine (IOM) conducted a study of the adequacy of nursing personnel staffing and found that there has been little careful examination of the relationship between skill mix and quality of care (Wunderlich, Sloan, and Davis, 1996). In fact, the panel stated that it was “shocked” at the lack of data available to analyze the quality of care in U.S. hospitals. The panel determined that there is little satisfactory evidence that changes in staffing patterns

¹⁹CSPCN’s acute-care hospital data do not include medical centers, which provide a broader range of services than do traditional hospitals. Average FTE employment of RNs, LVNs, and aides is expected to rise among medical centers. The OSHPD data include both acute-care hospitals and medical centers.

²⁰See Aiken, Sochalski, and Anderson (1996) for a similar discussion about nursing personnel employment concerns.

are adversely affecting the quality of patient care. An exhaustive literature search conducted for this report found no conclusive positive or negative evidence that nurse staffing or skill mix affects quality of patient care. This issue deserves further study, because understanding the relationship between nursing personnel employment and patient care is necessary to evaluate possible future changes in staffing.

Conclusion

Recent discussions of nursing employment have focused on reports of declines in nurse staffing and the fear that such declines could reduce the quality of hospital care received by Californians. However, as seen in the data in this paper, the average number of hours worked by nursing personnel increased in California's hospitals from 1977 to 1995. The number of hours worked by nursing personnel per case-mix-adjusted patient day has also risen. RNs had a greater share of the hours worked by nursing personnel in 1995 than in any prior year. Unfortunately, no satisfactory research exists that will allow an evaluation of the relationship between these nursing personnel trends and the quality of care. Future research should continue to track trends in the hours worked by nursing personnel and study the effect of those trends on the quality of care.

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