

Downsizing The Hospital Nursing Workforce

Are American hospitals reducing nurse staffing to unsafe levels? New research supports nurses' perceptions of fewer caregivers at the bedside.

BY LINDA H. AIKEN, JULIE SOCHALSKI, AND GERARD F. ANDERSON

THE HOSPITAL INDUSTRY IN the United States is undergoing widespread reorganization that includes restructuring of the workforce. Surveys reveal that nurses now working in hospitals have serious concerns about the impact of such staffing changes on quality of care and the safety of patients.¹ Media coverage of changes taking place in hospitals and hospital care echoes nurses' warnings; Congress expressed its concern by mandating the Institute of Medicine (IOM) to study the adequacy of nurse staffing in hospitals and nursing homes.² The recently completed IOM study recommended greater involvement of nurses in restructuring initiatives and more research on the relationship between nurse staffing and patient outcomes, because empirical evidence could not be found to support testimony and anecdotal reports by nurses and others that current staffing levels were adversely affecting patient care.³

Here we endeavor to reconcile nurses' perceptions that hospitals are reducing nurse staffing to unsafe levels with the dominant hospital management view that major restructuring of the hospital workforce, including nursing, is warranted. We bring together empirical data from various sources to examine the overall trends in hospital employment and to determine the implications for current

hospital restructuring activities as well as nurses' future job prospects.

DATA AND METHODS

Data on total hospital employment by labor category were abstracted from the American Hospital Association's (AHA's) Annual Survey data tapes for all short-term general hospitals for each year between 1981 and 1993 and were aggregated at the state and national levels. Hospital employees were grouped into five major categories: nursing, technicians, nonprofessional, (nonnurse) administration, and other professional.⁴ Registered nurse (RN)-specific employment data were drawn from the AHA *Hospital Statistics* reports, which also come from the Annual Survey. These figures are reported in terms of full-time-equivalent (FTE) employees. We obtained the hospital-specific case-mix index from the Health Care Financing Administration (HCFA) for each hospital in each year; we then divided each hospital's REs by its case-mix index to compute case-mix-adjusted hospital personnel. We derived data on the trends in overall RN employment from the Bureau of Health Professions' Division of Nursing. These data are based primarily on the National Sample Survey of Registered Nurses, which is conducted every four years.

Linda Aiken is trustee professor of nursing and professor of sociology at the University of Pennsylvania, where she directs the Center for Health Services and Policy Research. Julie Sochalski is a research assistant professor and the center's assistant director. Gerard Anderson is a professor in the Department of Health Policy and Management at The Johns Hopkins University School of Hygiene and Public Health. He also directs the university's Center for Hospital Finance and Management.

HOSPITAL EMPLOYMENT TRENDS

Total hospital employment grew steadily between 1981 and 1993, a trend that has motivated much of the recent attention to restructuring the hospital workforce. When the increase in overall hospital employment is examined in more detail—by taking into account the decline in inpatient days, the increase in outpatient visits, and the increasing level of patient acuity—there was still a net increase in employment of 11.3 percent (Exhibit 1). Embedded in this trend are several significant points regarding nursing personnel (RNs, licensed practical nurses [LPNs], and nurses' aides).

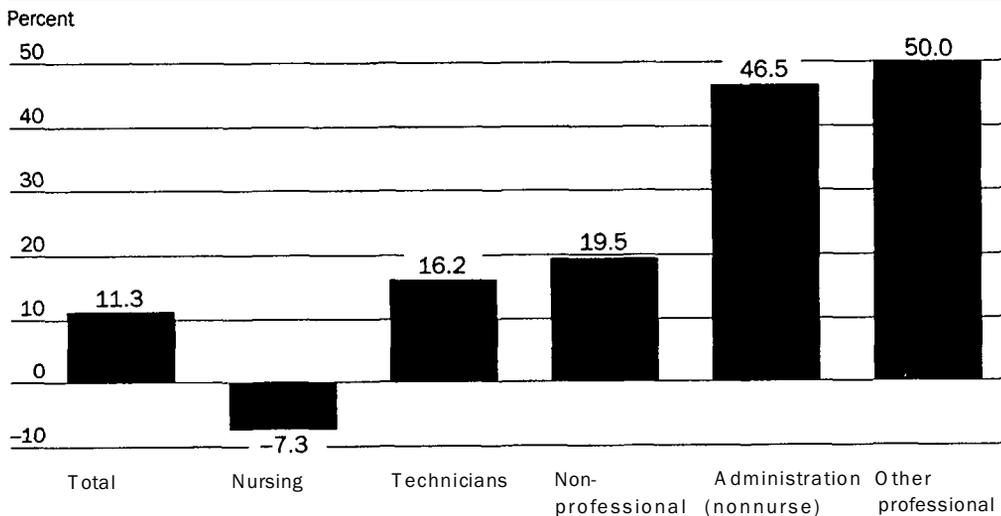
Most importantly, nursing personnel declined by 7.3 percent nationally, while all other categories of hospital personnel increased—including a 46 percent increase in nonnurse administrative personnel and a 50 percent increase in other professional staff. The decline in nursing personnel was substantial in some states; it reached 27 percent in Massachusetts, 25 percent in New York,

and 20 percent in California. Clearly, in these states considerably fewer nursing caregivers are at the bedside, which lends strong support to nurses' claims of reduced staffing. There are regional variations in employment patterns; Maryland declined by only 1 percent, and Texas increased by 25 percent. However, employment of nursing personnel in hospitals nationally is down. Moreover, nursing personnel have declined as a percentage of the hospital workforce, from 45 percent in 1981 to 37 percent by 1993.

The results of these changes in nurse staffing are a reduction in the number of nursing caregivers per patient at the bedside but also a richer "skill mix" in nursing personnel. Between 1984 and 1994 the number of RN FTEs at short-term community hospitals grew by 27.6 percent, which translates into roughly 193,000 additional RN FTEs (Exhibit 2). The result was a 29.4 percent increase in the RN-to-patient ratio. Although this appears on its face to be a significant increase in RNs, when the RN-to-patient ratio is adjusted for case-

EXHIBIT 1

Percentage Change In Full-Time-Equivalent Hospital Personnel Per 1,000 Adjusted Patient Days, Adjusted For Case-Mix, 1981-1993



SOURCE: American Hospital Association (AHA) Annual Survey data, 1981 through 1993.

NOTES: Adjusted patient days is the AHA calculation that converts a hospital's inpatient and outpatient volume into one value. Medicare case-mix index values from the federal Register are used as the proxy for overall case-mix.

EXHIBIT 2**Growth In Full-Time-Equivalent (FTE) Hospital Registered Nurses (RNs) Per 100 Adjusted Average Daily Census, Adjusted For Case-Mix, 1994-1994**

	Hospital RN FTEs (thousands)	Hospital RN FTEs per 100 AADC ^a	Hospital RN FTEs per 100 AADC, adjusted for case-mix ^b
1984	698	85	85.00
1994	891	110	85.27
Percent change	27.6%	29.4%	0.3%

SOURCE: American Hospital Association, Hospital Statistics, 1985 through 1995-96.

^a Adjusted average daily census (AADC) is the average number of patients (inpatients plus an equivalent figure for outpatients) receiving care each day during the reporting period.

^b The Medicare case-mix index is used as the proxy for overall case-mix.

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mix increases, almost no change is seen in the ratio over the period. The increased employment of RNs in hospitals, although significant in absolute terms, merely kept pace with the changing acuity levels of patients, thus keeping the RN-to-patient staffing ratios about constant in clinical terms over the period.

It appears, therefore, that the loss of non-RN personnel has been the principal cause of the overall decrease in nursing personnel. The result of these changes on nurse staffing—steady growth in RNs commensurate with case-mix increases and a decline in non-RN nursing personnel—has been an increase in RNs as a percentage of total nursing personnel, or an enriched nursing skill mix. Consequently, fewer nursing caregivers per patient are available today than a decade ago to provide care to a more acutely ill patient population. This substantiates nurses' reports of reduced staffing levels and offers an explanation for RNs' increased job stress, even though more RNs are involved in care.

The net effect of overall changes in hospital employment has been an increase in nonclinical personnel relative to clinical staff.⁵ As hospital restructuring initiatives are implemented, it would seem judicious to examine how savings may be achieved through productivity gains in the nonclinical workforce, as well as through efficiency gains in nonlabor categories, before focusing solely on clinical

personnel, where a relatively smaller investment has been made over the past decade. As for nursing, two objectives long advocated by hospital nurses have been achieved: a richer nursing skill mix and higher wages. Yet neither hospital nurses nor administrators are satisfied with the outcome, for different reasons.⁶ We concur with the IOM report that nurses are in the best position to judge the clinical consequences of staffing patterns and thus should be charged by hospital administrators with evaluating the alternatives for organizing and staffing for clinical care.

FUTURE DEMAND FOR REGISTERED NURSES

Hospitals' share of the growing pool of RNs has changed little during the past decade (from 68 percent to 66.5 percent), when many believed that the dominance of hospital RN employment would diminish.⁷ This pattern has largely been a function of the inpatient demand for RNs. Despite a substantial rise in hospital outpatient activity between 1988 and 1992, three new RNs were added for inpatient care for every new RN added for outpatient services.⁸ Although out-of-hospital settings offer new opportunities for RNs, hospital employment more than kept pace. For example, between 1988 and 1992 the number of RNs employed in nursing homes grew almost 20 percent, and the number of those employed in

home care grew nearly 50 percent.⁹ Even with these high rates of increase, however, six new hospital RNs were hired for each new nursing home RN, and five new hospital RNs were hired for every two new home care RNs.

Although hospitals will continue to generate new RN jobs, it seems unlikely that they will continue to increase their employment of RNs at the same rate as they have over the past decade if hospital use falls significantly, as some predict. Current hospital workforce trends from the AHA National Hospital Panel Survey suggest that job growth is tapering off, which could affect RNs in the future."

■ **PERCEPTIONS OF RN JOB CUTS.** It is possible that widespread reductions in the hospital RN workforce have taken place in 1995 and 1996 but are not yet reflected in available regional and national data. However, such perceptions were widely held in 1993, when the IOM study was commissioned and RN employment was continuing to grow.

We believe that perceptions of RN job reductions derive from several factors. One, cited earlier, is the decline in the overall number of nursing personnel, even though RN employment stayed constant through 1994. Another has to do with highly publicized actions at various institutions. A third, little-recognized factor is that the rate of growth in RN supply is outstripping RN job growth, particularly in certain geographic areas. We found a strong negative relationship between RN-to-population ratios and employment. Census regions with a low RN-to-population ratio in 1992 (that is, below the national average) had higher-than-average RN employment growth in the following two-year period; conversely, regions with high RN-to-population ratios had lower-than-average growth. The most graphic example of this relationship is in New England, where the largest supply of RNs is coupled with the lowest growth in employment. These condi-

tions constrain the job market, even though hospitals may not be laying off nurses in large numbers, and create difficulty for nurses seeking to change jobs as well as for new RN graduates seeking employment. Low levels of unemployment among RNs suggest that even new graduates are able to locate employment, albeit with greater difficulty.

■ **FUTURE EMPLOYMENT.** The market for RNs has been reasonably self-correcting over time. Although the demand for RNs still

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appears to be strong, it is unclear whether graduating cohorts of 95,000 (the size of the class of 1994) will continue to be absorbed as hospital job growth is curtailed. The RN supply likely will be tempered in the future if job availability is reduced. In fact, enrollment in RN programs dropped almost 1 percent in 1994 after seven consecutive years of growth, perhaps in response

to the tighter job market. This reduction presaged a recommendation from the Pew Health Professions Commission's report in 1995 to reduce the size and number of RN programs.¹¹ The demand for nurses, particularly in the hospital sector, also is influenced by nurses' relative wages, which are at an all-time high.¹² If nurses' wages stagnate and fall relative to those of aides and LPNs, the demand for nurses in hospitals could increase to the point of exhausting what may look like an oversupply, resulting in the kinds of RN shortages experienced in the 1980s.¹³ Finally, the average age of the nursing workforce is increasing, suggesting that retirement could increase greatly over the long term, thus providing more job opportunities for new graduates.

Estimates from the Bureau of Labor Statistics' *Occupational Outlook Handbook*, 1996-97 Edition rank RNs fifth among all job categories for the greatest predicted job growth between 1994 and 2005.¹⁴ Compared with many other categories, especially those outside of health care that are growing more slowly, nursing employment looks quite promising. The big

gest potential threat to nursing in the near term is not job availability. It is the possibility that in the quest to reduce spending, hospital management will implement poorly conceived reengineering plans that could undermine nursing's best efforts to maintain the quality and safety of clinical care.

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NOTES

1. See, for example, J. Shindul-Rothschild, D. Berry, and E. Long-Middleton, "What's Happening to Patient Care? Final Results of the AJN Survey," *American Journal of Nursing* (forthcoming).
2. K. Lumson, "Faded Glory. Will Nursing Ever Be the Same?" *Hospitals* (5 December 1995): 30-32, 34-35, S. Twedt, "A Question of Skill," *Pittsburgh Post-Gazette*, 11-14 February 1996; and Institute of Medicine, *Nursing Staff in Hospitals and Nursing Homes: Is It Adequate?* (Washington: National Academy Press, 1996), 92-127.
3. IOM, *Nursing Staff Hospitals and Nursing Homes*.
4. "Nursing" includes total nursing personnel (RNs, LPNs, and aides), "technicians" includes clinical technical personnel, such as pharmacy technicians; "nonprofessional" includes nonclinical support personnel; "administration" includes nonclinical administrative staff; and "other professional" includes clinical professional staff such as dietitians, physical therapists, and social workers. See G.F. Anderson and L.T. Kohn, "Employment Trends in Hospitals, 1981-1993," *Inquiry* (Spring 1996): 79-84.
5. Ibid. Also see D.U. Himmelstein, J.P. Lewontin, and S. Woolhandler, "Who Administers? Who Cares? Medical Administrative and Clinical Employment in the United States and Canada," *American Journal of Public Health* 86, no. 2 (1996): 172-178.
6. R.L. Brannon, *Intensifying Care: The Hospital Industry, Professionalization, and the Recognition of the Nursing Labor Process* (New York: Baywood Publishing, 1994). 125-168.
7. U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Nursing, *The Registered Nurse Population: Findings from the National Sample Survey of Registered Nurses*, March 1988 (Rockville, Md: DHHS, 1990), 19; and Division of Nursing, *The Registered Nurse Population: Findings from the National Sample Survey of Registered Nurses*, March 1992 (Rockville, Md: DHHS, 1994). 22.
8. Calculations from data provided in *The Registered Nurse Population: Findings from the National Sample Survey of Registered Nurses*, March 1988, Table 13; and March 1992, Table 14.
9. Calculations from data provided in *The Registered Nurse Population: Findings from the National Sample Survey of Registered Nurses*, March 1988, Table 12; and March 1992, Table 13.
10. A comparison of year-end cumulative figures for total hospital FTEs between 1992 and 1995 from the AHA National Hospital Panel Survey (adjusted for average daily census) shows a gradual decline in total FTE growth (nursing personnel and all others) from a 1.4 percent rise between 1992 and 1993 to a 0.5 percent decline between 1994 and 1995. Because occupation-specific employment is not available in the panel Survey, we do not know if the overall decline in employment also includes, for the first time, a drop in RN employment.
11. Pew Health Professions Commission, *Critical Challenges. Revitalizing the Health Professions for the Twenty-first Century* (San Francisco: University of California, San Francisco, Center for the Health Professions, December 1995), ix.
12. Calculations based on the annual weighted average salary from the National Survey of Hospital and Medical School Salaries (Galveston, Tex: University of Texas Medical Branch at Galveston, 1982-1994).
13. L. Aiken and C. Mullinix. "The Nurse Shortage: Myth or Reality?" *The New England Journal of Medicine* 317, no. 10 (1987): 641-646.
14. Bureau of Labor Statistics, US. Department of Labor, *Occupational Outlook Handbook, 1996-97 Edition* (Washington: U S Government Printing Office, 1996), 3.