Health Policy Report

NURSING IN THE CROSSFIRE

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What is exceptional in nursing is the nature of the work: the continuous and intimate association with pain and not infrequent contact with death. . . . Not every man or woman would feel themselves able to undertake the duties of a nurse.

Brian Abel-Smith,
A History of the Nursing Profession, 1960.[1]

NURSING is an embattled profession. Many nurses who work in hospitals feel that they are overworked and often unable to provide good patient care. The young people who traditionally have embarked on careers in nursing are increasingly choosing other fields, such as medicine or business, in which the pay and working conditions are better. Nurses who begin their careers in hospitals frequently leave for other positions. As the population ages, the demand for nurses is expected to grow rapidly. But because relatively few young people are entering nursing, severe shortages are anticipated by the end of the decade — unless this trend is reversed.

A 1996 Institute of Medicine report concluded that, although higher levels of staffing by nurses in nursing homes were linked to higher-quality care, the overall data for hospitals were not good enough to "isolate a number-of-RNs effect."[2] In this issue of the *Journal,* Needleman and colleagues[3] report that, in the United States, a higher proportion of hours of nursing care provided by registered nurses (registered-nurse–hours) and a greater number of registered-nurse–hours per day are associated with better outcomes for hospitalized patients. Among medical patients, these outcomes were a shorter length of stay and lower rates of urinary tract infection and upper gastrointestinal bleeding. A higher proportion of registered-nurse–hours was also associated with lower rates of pneumonia, of shock or cardiac arrest, and of death from five causes considered together — pneumonia, shock or cardiac arrest, upper gastrointestinal bleeding, sepsis, or deep venous thrombosis. The findings for surgical patients were similar, although fewer significant associations were found. The study found no evidence of an association between a greater number of hours of care per day provided by licensed practical nurses or hours of care per day provided by nurses' aides and better outcomes.

The study by Needleman et al. focuses attention both on the effect of nursing care on health outcomes and on efforts to increase the level of staffing by registered nurses in hospitals[4-6]; such efforts include instituting minimal staffing ratios and prohibiting mandatory overtime, except in emergencies. In this report, I discuss some of the key issues for the nursing profession.

BACKGROUND

The problems facing registered nurses are longstanding.[7,8] Registered nurses represent the largest single health care profession in the United States. People usually become registered nurses by completing an associate's-degree program at a community college, a diploma program administered at a hospital, or a baccalaureate degree program at a college or university and then obtaining a state license. During the past 25 years, the number of diploma programs has sharply declined. A 2000 survey of registered nurses who had recently completed their initial nursing education showed that more than half had graduated from an associate's-degree program and about two fifths from a baccalaureate program.[9] Licensed practical nurses account for about one quarter of the nurse work force. They typically have a high-school diploma and are trained in a one-year program at a technical or vocational school or a community or junior college.

Every four years, the National Sample Survey of Registered Nurses provides a statistical snapshot of the profession.[9] In 2000, there were an estimated 2,694,540 persons with a license to practice as registered nurses in the United States. An estimated 82 percent were employed in nursing, and of these, 28 percent were working on a part-time basis. Of the registered nurses employed in nursing, 1,300,323 (59 percent) worked in hospitals. The unemployment rate for registered nurses was about 1 percent.[10] An estimated 95 percent of the nurses were women, 72 percent were married, and 87 percent were white. Their average age was 45 years. Thirty-four percent reported their highest level of education as an associate's degree, 22 percent as graduation from a nursing diploma program, 33 percent as a bachelor's degree, and 10 percent as a master's or doctoral degree. Seven percent were practicing or prepared to practice in an advanced practice role, such as clinical nurse specialist, nurse anesthetist, nurse midwife, or nurse practitioner.

Between 1983 and 2000, the staffing levels of registered nurses in hospitals increased by 37 percent (Fig. 1). The staffing levels of licensed practical nurses decreased by 46 percent. The average daily census of hospitalized patients fluctuated but decreased overall. Through 1993, the ratio of registered nurses to patients increased, but it may merely have kept pace with increases in the severity of patients' conditions.[11] Although the ratio of registered nurses to hospitalized

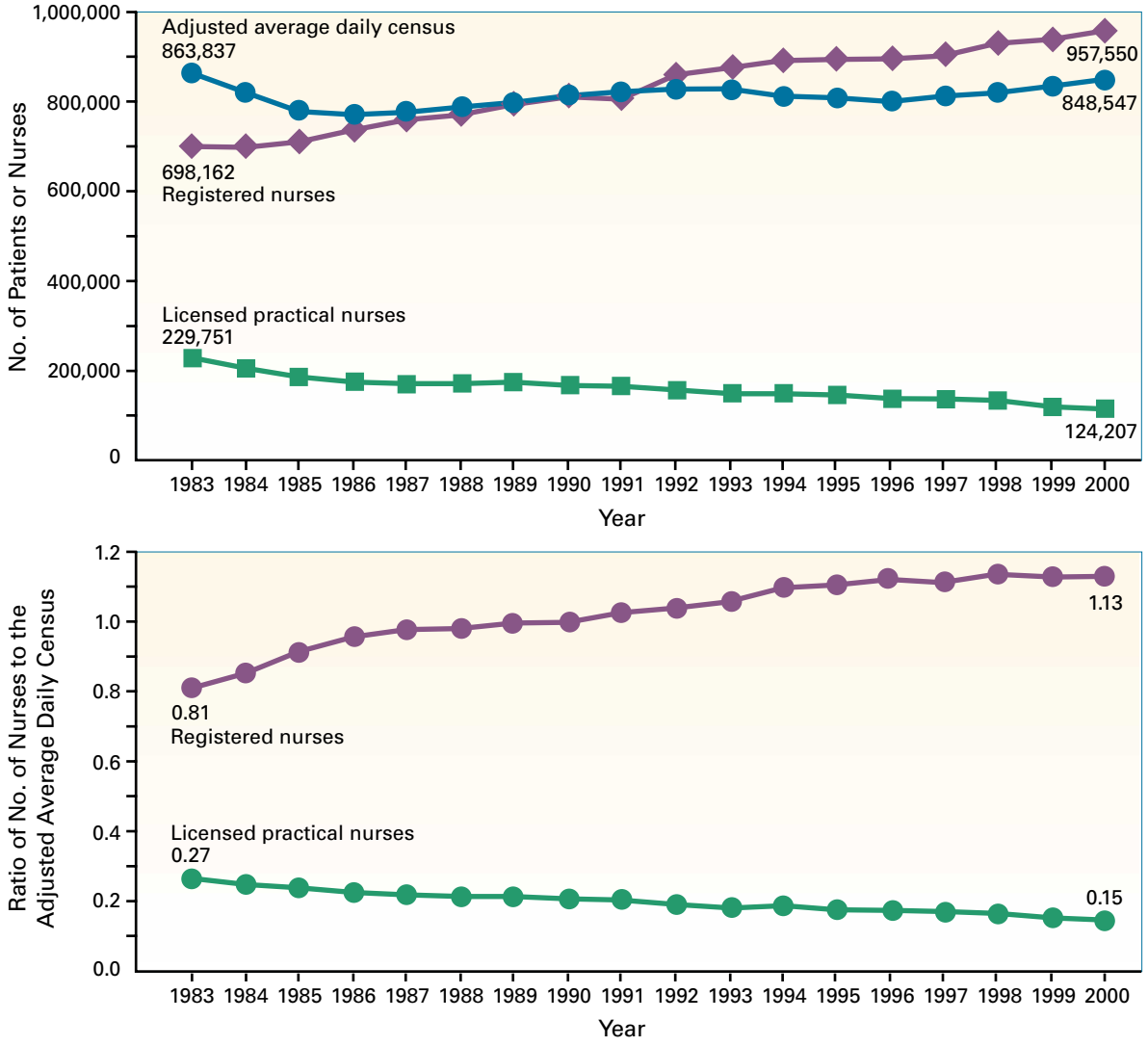

Figure 1. Levels of Staffing by Nurses in Registered Community Hospitals in the United States, 1983 to 2000.

Absolute numbers are shown in the top panel, and ratios in the lower panel. The number of hospitalized patients, the number of registered nurses, and the ratio of registered nurses to patients have increased. The number of licensed practical nurses and the ratio of licensed practical nurses to patients have decreased. The number of registered nurses and the number of licensed practical nurses shown are full-time equivalents. The adjusted average daily census was calculated by dividing the number of inpatient-days by the number of days in the reporting period. Registered community hospitals (short-term general and specialty hospitals that are registered with the American Hospital Association) are included; federal hospitals are not included. Data are from the American Hospital Association, Health Forum, AHA Annual Survey of Hospitals, 1983–2000.

patients remained relatively constant between 1994 and 2000, there are no recent data on staffing that adjust for the severity of patients' illnesses as well as their shorter lengths of stay.

DISSATISFACTION AMONG NURSES

Nursing "is a very stressful job with a very flat career path," according to Frank Sloan of Duke University, who was the cochair of the committee of the Institute of Medicine that reported on nursing in 1996.[2] "Women are finding many other choices." Registered nurses are discontented for many reasons, including inadequate levels of staffing for both nurses and support staff and excessive workloads. Because hospitalizations are shorter, nurses spend a higher percentage of their time admitting and discharging patients and teaching them what they need to do after they go home. The discontent is part of a broader malaise that

also affects physicians and others who work in hospitals. According to the April 2002 report of the American Hospital Association's Commission on Workforce for Hospitals and Health Systems, "Most health care workers entered their professions to 'make a difference' through personal interaction with people in need. Today, many in direct patient care feel tired and burned-out from a stressful, often understaffed environment, with little or no time to experience the one-on-one caring that should be the heart of hospital employment."[12]

According to Linda H. Aiken of the University of Pennsylvania School of Nursing, "There is the sense that nursing is becoming an impossible job, and that nurses have no control over things that are required to provide good patient care. Yet nurses are accountable for the health and welfare of their patients." The perception is that physicians and hospital administrators often treat registered nurses as workers, not as clinicians and peers, and when possible seek to replace them with less skilled and cheaper personnel, such as licensed practical nurses and aides.

Nurses who begin their careers in hospitals frequently leave for other positions. A large survey of nurses in Pennsylvania, conducted in 1998 and 1999, found that 41 percent were dissatisfied with their present job and that 23 percent of those surveyed were planning to leave this job within the next year.[13] Only about a third agreed with the statements that "there are enough registered nurses to provide high-quality care," "there are enough staff to get the work done," and "the administration listens and responds to nurses' concerns." In a national survey of working nurses conducted in 2001 and 2002, 29 percent of the respondents said they were dissatisfied with their current position; 23 percent were dissatisfied with being a nurse.[14]

Financial Issues

In recent years, wages for registered nurses have been relatively flat as compared with the rate of inflation (Fig. 2). In 2000, the average annual salary of a registered nurse employed full-time was $46,782.[9] Between 1980 and 1992, real annual salaries for registered nurses increased by nearly $6,000. Between 1992 and 2000, however, they increased by only about $200.

Organizing Nurses

Working conditions have been a key issue in recent nursing strikes,[4] such as a bitter two-month strike at the Oregon Health and Science University that ended in February.[15] The ferment within the profession has led to increased interest in collective bargaining. For example, the California Nurses Association has an alliance with the United Steelworkers union. In 2000,

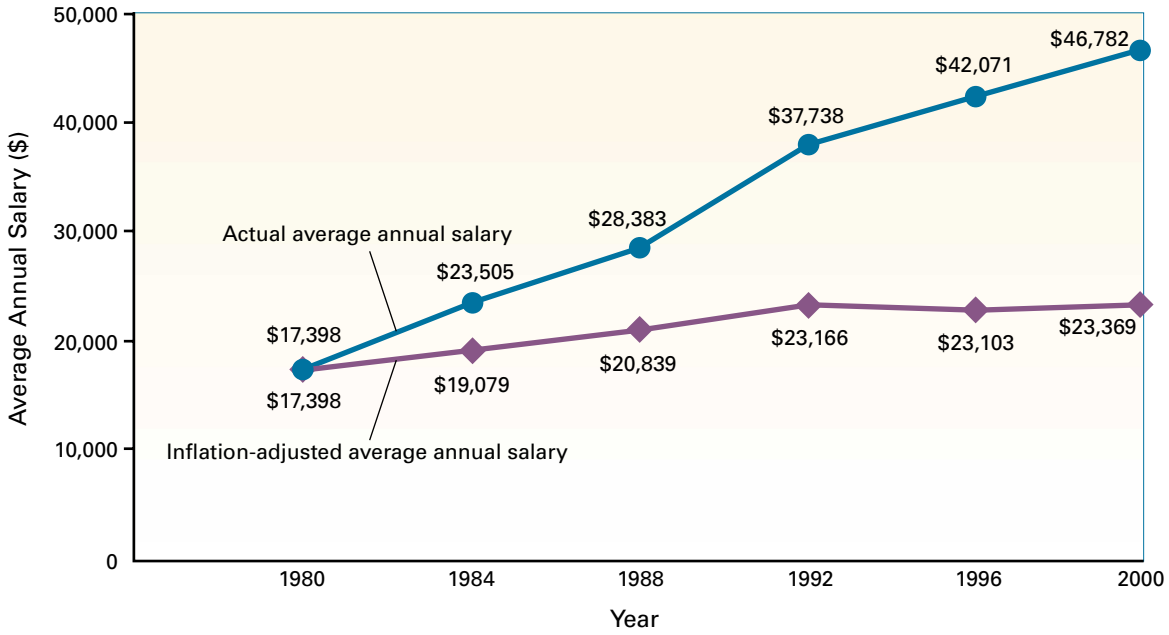

Figure 2. Actual and Inflation-Adjusted Average Annual Salaries of Full-Time Registered Nurses in the United States, 1980 to 2000. Adapted from the National Sample Survey of Registered Nurses, March 2000.[9]

17 percent of registered nurses who were employed in nursing were members of a union, and 19 percent were covered by a collective bargaining agreement.[16] Although these percentages are similar to those for 1990 and 1995, the number of union members has increased — from about 275,000 in 1990 to about 350,000 in 2000 — because of the growth in the number of nurses.

There is also a schism between two groups that represent registered nurses. The American Nurses Association, the largest group, has been criticized for being too moderate. The California Nurses Association, a particularly aggressive and politically active group, left the American Nurses Association in 1995. The Massachusetts Nurses Association left in 2001. State nurses associations in California, Massachusetts, Maine, Missouri, and Pennsylvania are forming a new group, the American Association of Registered Nurses. This group will compete with the American Nurses Association in representing nurses at the national level.[17]

SHORTAGES OF NURSES

Since World War II, hospitals in the United States have coped with cyclical shortages of nurses. The shortages have generally been related to economic factors. When the overall economy declines, married nurses and working mothers, who represent a substantial portion of the workforce, are more likely to seek work or increase their hours; in better economic times they may be less likely to work or may only work part-time.[12] As in other fields, higher wages and better jobs encourage more nurses to seek employment.

In the 1990s, the growth of managed care slowed employment growth for registered nurses in hospitals, particularly in states such as California.[18,19] There was a surplus of registered nurses; some nurses lost their jobs, and some new nurses were unable to find jobs. Although hospitals were still hiring more registered nurses (Fig. 1), it seemed that they might need fewer in the long term. Enrollment in nursing schools declined (Fig. 3).

Measuring the Shortages

Shortages of hospital nurses are sometimes difficult to evaluate.[20] Among the potential measures of a shortage are reports by hospital officials or nurses, the vacancy rate for nursing positions, the turnover

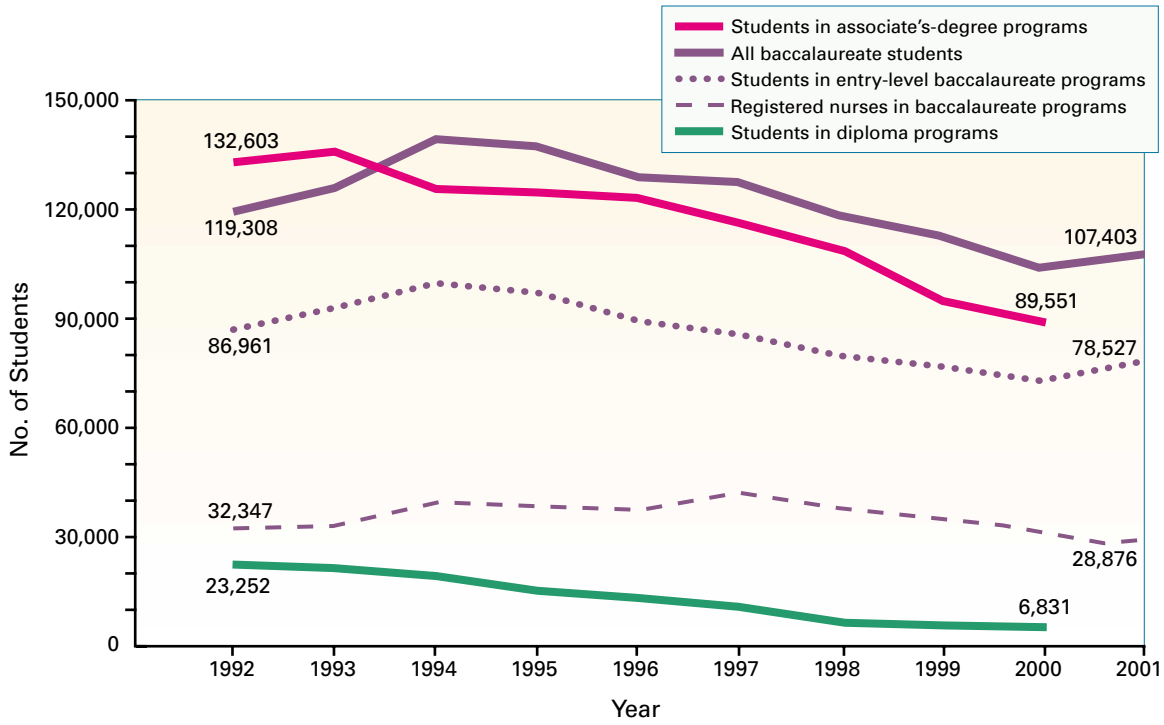

Figure 3. Enrollment in Educational Programs to Train Registered Nurses in the United States.

Baccalaureate programs for registered nurses allow nurses who have a nursing diploma or associate's degree to earn a bachelor's degree. The number of all baccalaureate students is the number of students in entry-level programs plus the number of registered nurses in baccalaureate programs. Data for baccalaureate programs are from the American Association of Colleges of Nursing. Data for associate's-degree and diploma programs are from the National League for Nursing; their data for 1997 through 2000 are preliminary.

rate for these positions, the number of nurses at a hospital after adjustment for the number of inpatients and the case mix, and the supply of registered nurses per 100,000 population. Although there is no gold standard, a recent study found the strongest relations between reports by hospital officials or nurses of a moderate or severe nursing shortage and job-vacancy rates.[20] Differences in the supply of nurses per capita did not predict which regions would have a majority of hospitals reporting shortages.

The number of employed registered nurses per capita varies widely from state to state (Fig. 4). In 2000, the national average was 782 employed nurses per 100,000 population. California had only 544, whereas Massachusetts had 1194 and Pennsylvania had 1010.[9] These variations have been cited as evidence of regional shortages of nurses, particularly in states with a low supply of nurses, such as California,[21] Nevada,[22] and Texas.[23] The demand for hospital-based nurses, however, reflects many factors, including the number of hospital beds, the average length of stay, the specific medical services offered, population growth, and the number of elderly residents. Although Florida has 785 nurses per 100,000 population — about the national average — the supply has been considered inadequate because the state has the highest percentage of elderly persons in the nation.[24] Because a low supply of nurses may reflect a low demand — not an unmet demand — for hospital-based nurses, the importance of the variations in and of themselves is uncertain.

The Current Shortage

The current shortage of nurses began in 1998 in intensive care units and operating rooms.[25] It has since spread to labor-and-delivery units and general medical and surgical wards. The shortage is widespread throughout the country.

In 2001, the mean vacancy rate for registered-nurse positions at a given hospital was 13 percent. Fifteen percent of hospitals reported vacancy rates of 20 percent or more.[26] Mean vacancy rates were 11 percent in the Northeast and Midwest, 13 percent in the South, and 15 percent in the West. There were about 126,000 vacant positions nationwide.[27] Eighty-two percent of hospitals reported that it was more difficult to recruit registered nurses in 2001 than it had been in 1999; 1 percent said that it was less diffi-

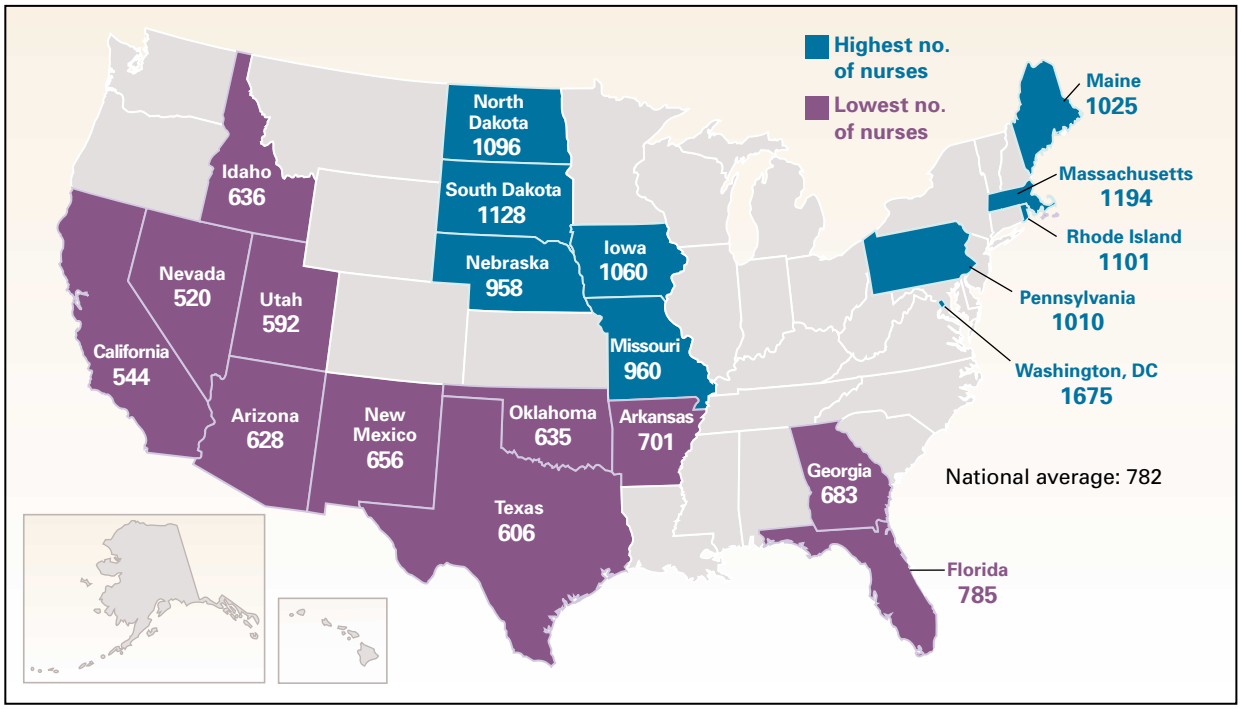

Figure 4. Employed Registered Nurses per 100,000 Population.

Both nurses who work full-time and those who work part-time are included. Data are from the National Sample Survey of Registered Nurses: March 2000.[9]

cult.[26] According to a 2001 survey of chief executive officers of hospitals, 84 percent of hospitals had shortages of registered nurses; the next most frequently cited job categories with shortages were radiology and nuclear imaging (71 percent) and pharmacy (46 percent).[12] Of registered nurses working in nursing who were surveyed in 2001 and 2002, 95 percent thought there was a shortage of nurses, and 88 percent thought that the supply of registered nurses working in patient care in their community was lower than the demand.[14] National data about the current shortage of nurses are corroborated by reports from various states, including California,[6,21] Florida,[24] Maryland,[28] Nevada,[29] New York,[30] and Texas.[23]

The current shortage of nurses, albeit severe, may be similar to cyclical shortages that have occurred during the past 50 years. Better wages and better jobs, as well as better marketing of nursing schools and of nursing as a career, increased availability of training programs, and changes in the general economy, may encourage more students to enter nursing programs and bring more current nurses back into the job market. If these short-term factors are addressed, the current shortage should abate.

The Long-Term Shortage

Many predictions of long-term shortages or surpluses of physicians or other health care workers have turned out to be wrong. Nevertheless, there is the potential for a long-term shortage of nurses. This possibility reflects changing demographic and other factors, such as the decreased attractiveness of careers in health care to those entering employment and the dissatisfaction of people who currently work in hospitals.[11,31] According to the workforce commission of the American Hospital Association, shortages of nurses and other employees "reflect fundamental changes in population demographics, career expectations, work attitudes and worker dissatisfaction. The shortages will not disappear with the current or the next economic downturn."[12]

Both the registered-nurse workforce and the general population are rapidly aging. As members of the "baby boom" generation begin to retire, the demand for nurses is expected to increase rapidly.[32] Between 2000 and 2010, the occupation of registered nurse will be one of the five occupations with the greatest growth in the number of jobs, according to the Bureau of Labor Statistics. It is projected that during this period, there will be 1,000,400 job openings for registered nurses, including 561,000 new positions.[33]

Younger nurses are more likely than older nurses to work in hospitals. In 2000, only 9 percent of registered nurses were less than 30 years of age, as compared with 25 percent in 1980 (Fig. 5). About a third of registered nurses were 50 years of age or older.[9] A related issue is that nursing, particularly in a hospital, can be physically demanding and lead to occupational injuries, particularly for older nurses.[2] By 2020, a shortage of more than 400,000 registered nurses is possible.[32] One analysis concluded: "The evidence suggests a not-too-distant collision between the aging and shrinking RN workforce and the increasing demand driven (among other things) by the expanding population of Medicare beneficiaries."[34]

MINIMAL NURSE-STAFFING RATIOS

In 1999, the California legislature, prompted by concern about the effects of decreased levels of staffing by nurses on the quality of care, required the state Department of Health Services to establish minimal staffing ratios of nurses to patients according to the types of licensed-nurse classification and hospital unit.[35,36] In January 2002, Governor Gray Davis announced the proposed ratios (Table 1).[37] The actual regulations are likely to be finalized later this year, after public comments and hearings, and to take effect by July 2003.

The staffing ratios have been the subject of sharp disputes between the California Nurses Association, which worked for years to pass the legislation, and the California Healthcare Association, which represents hospitals in the state and has opposed the approach.[38] The nurses' association advocated a minimal ratio of 1 nurse to 3 patients on medical–surgical units; the hospital association advocated a minimal ratio of 1:10.

The proposed ratios include a minimum of one nurse to six patients on general medical–surgical units (Table 1). This minimum would change to one nurse to five patients 12 to 18 months after the regulations go into effect. Although most of the nurses are likely to be registered nurses, the extent to which licensed practical nurses could be substituted is not yet clear. For labor-and-delivery units, the minimal staffing ratio is one nurse to two patients. Intensive care units are already subject to a minimum of one nurse to two patients. The ratios are meant to be minimums; hospitals are expected to increase levels of staffing when patients require additional care.

Complying with the Ratios

California has 470 hospitals, according to the California Healthcare Association. Fifteen percent of hospitals with medical–surgical units would not be in compliance with the initial ratio if it took effect now, and 36 percent would not be in compliance with the final ratio, according to Joanne Spetz of the Center for California Health Workforce Studies at the University of California, San Francisco.[39] Fifteen percent of hospitals with labor-and-delivery units would not be in compliance with the proposed ratio.

Spetz predicted that the cost of implementing the

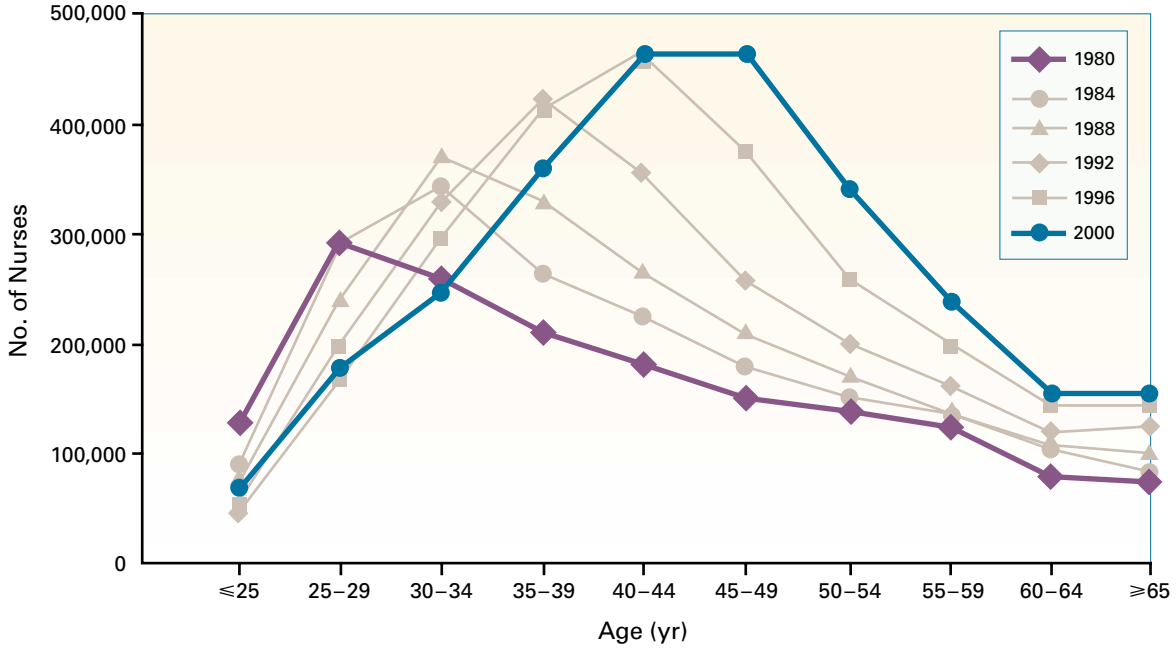

Figure 5. Age Distribution of Registered Nurses in the United States, 1980 through 2000.
Adapted from the National Sample Survey of Registered Nurses: March 2000.[9]

recommendations would be "rather small," because many hospitals would have to hire few, if any, additional nurses. She estimated the annual per-hospital increase in expenditures for nursing as $143,846 (1.0 percent) for the initial ratios and $217,210 (1.7 percent) for the final ratios.[39] The California Healthcare Association has not prepared per-hospital estimates. It has estimated that if 5000 additional registered nurses are required statewide, the annual cost might be $400 million. It is possible, however, that the costs of hiring additional nurses may be offset if patients have fewer complications and adverse events and therefore leave the hospital sooner.

Reaction to the Ratios

According to Rose Ann DeMoro, the executive director of the California Nurses Association, minimal nurse-staffing ratios "are a dramatic step forward for hospitals in California" and will help to "create conditions in hospitals for nurses to return." Jan Emerson, vice president of external affairs at the California Healthcare Association, said that although "the hospital industry agrees with the notion that more nurses is probably a good thing," the minimal staffing ratios could have "serious unintended consequences." These include an inability to find qualified registered nurses, which may force hospitals to eliminate beds and reduce access to care. The proposed ratios also raise practical issues, such as whether the level of staffing is required around the clock.

The new American Association of Registered Nurses is encouraging other states to enact similar legislation. Mary Foley, the president of the American Nurses Association, said that her organization was "not opposed to the California bill but did not support it enthusiastically." She said that, although "10 to 12 patients per nurse is horrible," safe medical and nursing care is "not just a matter of numbers." Aiken, of the University of Pennsylvania School of Nursing, predicted that unless a "floor" for staffing is established, "we are not going to be able to stop the flight of nurses from hospitals. . . . If it is feasible to implement the ratios, a lot of other states may follow."

MANDATORY OVERTIME

Some people like to work overtime, because they can make more money or take other time off. Others prefer to work on a regular schedule. Although it might seem inefficient and expensive for an employer to hire too few employees and then pay higher wages for overtime, this approach reduces the number of permanent employees and is one way to cope with vacancies.

Overtime has unique aspects in health care. Physi-

TABLE 1. PROPOSED MINIMAL NURSE-STAFFING RATIOS FOR HOSPITAL UNITS IN CALIFORNIA.*

HOSPITAL UNIT	PROPOSED RATIO OF NURSES TO PATIENTS
Intensive or critical care†	1:2
Neonatal intensive care†	1:2
Intermediate care nursery†	1:4
Labor and delivery	1:2
Postanesthesia care	1:2
Emergency department	
General	1:4‡
Critical care	1:2
Trauma	1:1
Pediatrics	1:4
Step-down with telemetry	1:4
Specialty care (oncology)	1:5
General medical–surgical	1:6§
Behavioral health or psychiatric	1:6

*Data are staffing ratios proposed by the California Department of Health Services in January 2002[37] under Assembly Bill 394, which was signed into law in 1999.[35] The actual regulations — which have yet to be finalized — are to take effect in 2003. Although most of the nurses are expected to be registered nurses, the proposed ratios do not specify when licensed practical nurses can be used. Not all types of hospital units are listed.

†Minimal nurse-to-patient ratios are already in place for these units by California statute, regulations, or both.

‡Triage, radiology, or other specialty nurses are considered to represent an additional workforce; they are not included in this ratio.

§This ratio is an initial ratio; a ratio of 1:5 is to be phased in 12 to 18 months after the effective date of the regulations.

cians and nurses have professional obligations to care for their patients and not abandon them. Although overtime is essential in emergencies, there is concern that hospitals, like other businesses, are using it instead to compensate for inadequate levels of staffing. Exhausted nurses, like exhausted physicians, can pose safety risks. "By far the riskiest result of understaffing is the abuse of mandatory overtime as a staffing tool," Foley of the American Nurses Association stated in congressional testimony in March of this year.[40] Many nurses, she said, are being required to work some mandatory or unplanned overtime every month or face dismissal for insubordination or being reported to the state board of nursing for abandonment of patients.

In the recent national survey of working nurses,[14] 61 percent of respondents said they had observed increases in overtime or double shifts during the past year. Forty-eight percent said that "the amount of overtime required" had increased, 6 percent said it had decreased, and 45 percent said it had remained the same. Forty-five percent said working overtime was "strictly voluntary," 32 percent said it was "voluntary but feels like it is required," and 20 percent said it was "required" (Buerhaus P, Vanderbilt University School of Nursing: personal communication). A national survey of oncology nurses, conducted in 2000, had similar findings (Buerhaus P: personal communication).[41]

As of early May 2002, six states had enacted laws that ban or limit mandatory overtime, except in emergencies — Maine,[42] Maryland,[43] Minnesota,[44] Oregon,[45] New Jersey,[46] and Washington.[47] The Washington law prohibits hospitals from requiring nurses who care for patients from working more than 12 hours in a 24-hour period or more than 80 hours in a period of 14 consecutive days. Many of the other laws have similar provisions. More states are likely to enact such laws, which are backed by the American Nurses Association and other nursing organizations.

POTENTIAL SOLUTIONS

A major goal of minimal nurse-staffing ratios or the prohibition of mandatory overtime is to improve the quality of care. These measures may exacerbate shortages in the short term because hospitals will most likely have to hire more registered nurses. However, if they help to make hospitals more attractive places to work, they may make it easier to recruit nurses. Their actual effects will not be clear for at least several years.

The potential solutions to the shortage of nurses and related problems include expanding enrollment in nursing schools and bringing more men and members of minority groups into the profession.[21,34] They also include developing incentives to encourage nurses who work part-time to work more hours, offering better salaries, providing more regular work hours, and restructuring hospitals to make the work environment more attractive. In its recent report, the workforce commission of the American Hospital Association emphasized the need to make hospital work more meaningful and rewarding.[12] Still other approaches, such as recruiting more nurses from overseas[48] or encouraging affluent patients to hire their own nurses,[49] are less likely to have broad effects. Some combination of these approaches is likely to be most effective.

Financial incentives may be particularly important. Many hospitals are paying nurses signing bonuses of $1,000 to $5,000 or more and are temporarily filling vacant positions with registry or traveling nurses.[14,26] In Boston, Tufts–New England Medical Center has agreed to raise nurses' pay 18 to 23 percent over a period of 23 months.[5] Nurses at the Oregon Health and Science University will receive at least a 20 percent raise over a three-year period.[50]

The American Nurses Credentialing Center, a subsidiary of the American Nurses Association, has developed the "magnet nursing services recognition pro-

gram" for hospitals that meet quality standards and provide nurses with more responsibilities, autonomy, and opportunities to participate in policy decisions. Studies suggest that nurses in such hospitals have greater job satisfaction, and the hospitals are less likely to have difficulty hiring and retaining nurses.[51] As part of the new contract for nurses, the Oregon Health and Science University agreed to seek "magnet" status.

Enrollment in associate's-degree programs for nurses decreased through 2000, according to preliminary data (Fig. 3). One encouraging sign, however, is that enrollment in baccalaureate programs, which appeal to younger students,[52] has increased[53] (Fig. 3). The increase — in 2001 — ended a six-year period of declining enrollment. The Nurse Reinvestment Act would authorize federal funding for scholarships and loan repayments for nurses who agree to work after graduation in areas where there are shortages, as well as for public-service announcements that would promote nursing as a career.[54] The Bush administration has announced the availability of grants and has proposed extending loan-repayment programs.[55] In California, Governor Davis has proposed a $60 million initiative for the nurse workforce that expands training programs for nurses.[56]

THE FUTURE

Nurses who work in hospitals are apprehensive about the future. Hospitals employ many more registered nurses than physicians and cannot function without them. At a time of serious financial constraints, however, they must often choose between hiring more nurses and launching or maintaining other programs that may improve patient care, such as computerized order-entry systems.[57] Some of the issues raised by nurses about hospital staffing reflect their interest in their own financial and job security. Yet there is ample evidence of a broader unease.

Many tensions will be difficult, if not impossible, to resolve, particularly if additional funds do not become available. For example, within the nursing profession, higher-quality care may mean a better-educated workforce, with a higher percentage of nurses with bachelor's or advanced degrees. Such a workforce, however, would expect more responsibility and greater independence and would be more expensive to hire and retain.

In the long term, the future of the nursing profession is related to its ability to attract more young nurses, to support the careers of current nurses, and to create more jobs for nurses with higher wages and greater responsibilities. Such efforts can be successful only if the positions students are training to fill are sufficiently attractive, as compared with the alternatives in other fields. "Nursing is a worthy career," said Foley, the president of the American Nurses Association. "It should not be considered secondary or inferior. We want nursing back on the list of career choices for bright young men and women who are looking at health care."

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