



NURSING IN CALIFORNIA: *A Workforce Crisis*

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The California Endowment is a private foundation with staff throughout the state whose grants are made to organizations and institutions that directly benefit the well being of Californians.

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The California Workforce Initiative, housed at the UCSF Center for the Health Professions and funded by the California HealthCare Foundation and The California Endowment, is designed to explore, promote and advance reform within the California health care workforce. This multi-year initiative targets supply and distribution, diversity, skill base and regulation of health workers, utilization of health care workforce and health care workers in transition.



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The Center is committed to the idea that the nation's health will be improved if the public is better informed about the work of health professionals.



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EXECUTIVE SUMMARY

Introduction

What follows is a report on the nursing practice and education issues confronting California. The study was conducted as a part of the California Workforce Initiative of the Center for the Health Professions at the University of California, San Francisco. The California Workforce Initiative is a joint effort of the California HealthCare Foundation and the California Endowment.

Background

Most Californians assume that when they need to visit a health care clinic, be admitted to the hospital, or stay in a nursing home the needed services will be available. Essential to such access is the availability of health professionals to provide the needed care. As the largest, most widely dispersed, and most flexibly deployed of all of the health professions, nursing is the backbone of the health care delivery system. Without nursing, many of the services that are taken for granted would not be available or would be seriously compromised.

For a host of complex and interrelated reasons, over the coming decades California may not have adequate numbers of nurses with appropriate skills. This problem is just rising to the attention of the profession, nursing educators, and managers in the health system. Increasingly, it will affect the public through constrained access, higher costs for care, and reduced quality of service. While the nursing crisis in California has some distinct characteristics, it is essentially driven by the same dynamics that exist throughout the U.S.

Because nursing is central to so many dimensions of care, there currently is a great deal of attention and some activity being focused on the problems of those most immediately affected. Understandably, much of this activity is of a short-term nature that may help but will not solve the issue in all of its dimensions. This study is an effort to capture the complexity of the problem and to identify those longer-term strategies that can assist

California in positioning nursing education, practice, and professionalism to meet the challenges of the coming years.

Secular Trends

These issues may be the most daunting; although they are far and away the most powerful contributors to the situation, they are independent of direct action. Perhaps most obvious is the aging of the U.S. population. As the Baby Boom generation ages over the coming forty years, they will require more and more care. Few, if any, parts of the health care system are prepared to meet these challenges, and the inadequate supply of nurses is no small part of the problem. Part of the nursing supply problem is itself related to aging. In some regions of California, over half of the RNs in practice are over 50. If the tendency of RNs in their 50s and 60s to retire or shift to non-patient care jobs persists, then they will represent much of the shortfall in nurse staffing.

An equally powerful demographic trend is the growing diversity of the population. Although California is well ahead of most of the U.S. in experiencing this reality, much work remains in rebuilding institutions to reflect the new multicultural reality of a non-majority state. While most non-white groups are underrepresented among California's nurses, recent nursing graduates have shown a definite trend toward representing the makeup of the state's population, particularly in regard to Asians and African Americans. Nursing has an opportunity to address its needs for greater numbers and add needed diversity to its ranks.

For years in the U.S., nursing and teaching were two of the few career paths that were widely available to young women. The fairly recent expansion of opportunity for women means that the professions can no longer count on a large number of young women being induced to enter the fields for lack of other options. This means that nursing will have to reposition itself as an attractive professional career in order to compete successfully for the interest of those entering the workforce.

Attracting and keeping younger workers are challenges for all employers. Increasingly evident is a shift in values within the next generation and that the images of nursing as a profession and the hospital as an employer are inconsistent with their desires and ambitions.

A part of the solution to the nursing problem will be aligning the profession and the work of nursing with these values.

Similarly, there is a much broader redefinition of work going on throughout the U.S. economy. Part of this is driven by the enormous information and communications technological revolutions that make work more flexible and dispersible. But other dimensions of the change have to do with a more broadly educated public, desire for independence and accountability by individuals, and growing consumer demands. Little of this has yet to affect how nursing work is structured or organized.

Nursing Work Environment

As critical as the broader social changes are, nurses are more directly affected by changes in their immediate work environment. These changes, real or perceived, account for much of the satisfaction derived and value added by the staff nurse. To understand the nursing crisis, it is essential to grasp this changing work environment.

Over the past decade, the hospital has been the epicenter of the effort to rationalize the health care system through managed care. As pressure to decrease cost and increase accountability has grown, the effects have been felt throughout the hospital. Most immediately the pressure has led to efforts to reduce the length of stay in the hospital and limit admission to those that are most in need of care services. In consequence, there is a higher level of patient illness and more activity within the hospital. This means more critical decisions and work need to be carried out in less and less time. The change in work has led to more stress and less satisfaction on the part of staff nurses. It also has led to the constrained ability of hospitals to invest in orientation and training for new nurses and growing tension between those with experience and those needing it.

Another consequence of the effort to control cost is the deterioration of the support system that surrounds the nurse. Decreases in auxiliary staff, particularly in clerical and custodial positions, training and development, and support technology, have been identified as exacerbating the already stressful nursing environment. Moreover, the high-pressure environment coupled with declining resources has made the overall work environment more contentious and less rewarding.

Wages are inevitably under pressure when reductions in cost are demanded. In a robust California economy with many career options available to nurses, inflation adjusted wage rates actually fell in the mid-1990s.

Making the needed changes in the hospital is a complex undertaking. It requires flexibility, cooperation, and leadership skills to manage an involved change process. Too often, inadequate organizational resources have been applied to the problem. These inadequacies include the current professional model of nursing; an increasingly contentious and less cooperative relationship between management and labor in many health care settings; insufficient levels of management and leadership skills, particularly for front-line managers of staff nurses; and lack of understanding by executive leadership that the creation of a constructive work environment for nurses is of central strategic importance.

Education

Nursing schools are an important part of both the problem and the solution. Unlike in many other areas of the U.S., the demand for nursing education in California has not dropped precipitously. However, there are parts of the system of education that need serious attention, expansion, and integration.

The system of nursing education does not function like a system. The three public systems of education — California Community College, California State University, and the University of California — dedicates significant resources to the education and training of new nurses. However, looking across the schools and programs, one sees little integration, standardization, or cooperation. This approach does not serve the needs or demands of students, the employing health care organizations, or the state. There have been several notable efforts to address these problems. However, the nursing education resource is so critical to successfully addressing the crisis in nursing that these efforts need to be moved to the highest priority. No new investment in expanding nursing education should be made until the system is made more responsive.

Even with a properly functioning system, California has an inadequate supply source for new nurses. Historically, the state has imported a large proportion of nurses from around

the country and abroad. With growing demands for nurses across the country and the rising cost of living in California, it seems unlikely that such a trend will continue. Expanding the number of opportunities for education must become a priority. This includes expanding faculty and financing. However, these expansions must be sensitive to other dimensions of this crisis or potential students may well pass over these new opportunities.

Expansion of the system should recognize the need to go beyond the traditional nursing student. Of particular importance is the ability to attract minority students, especially Latinos, and individuals with career and educational experiences and interests that are not traditionally associated with nursing.

Finally, education cannot and should not carry out these changes alone. The care delivery system must meaningfully engage in addressing these problems. Over the past few years, as pressure has mounted, there has been a growing separation of education and practice in nursing. Although the development is understandable from both sides, it will not be possible to address the crisis in the nursing workforce supply without the active engagement of education by the care delivery system.

Conclusion and Recommendations

Merely increasing the number of training programs or raising wages will not address the problems facing nursing. Although both steps are likely to contribute to the solution, they are at best necessary and not nearly sufficient. Nursing work must be remade. First, the health care system must figure out how to value and support the nurses that are currently employed. Next, the skills of the RN must be effectively leveraged against the tasks and challenges facing health care. This may mean redefining nursing practice, adding new types of health care workers, sharing authority differently, and focusing on improving the outcomes of a system that will face resource constraints from now on. This middle step points to the final one in which nursing as a practice, profession, career choice, and educational program must be repositioned to capture the interest and skills of the new California workforce. Without such a fundamental realignment, wage increases or new programs will not adequately meet the challenge of this crisis.

What follows are the specific recommendations for action that have been derived as a part of this study. Two themes emerge throughout: leadership and collaboration. Many of the resources to address this crisis exist. They need to be activated with a spirit of leadership and cooperation, which has been absent in health care of late.

WORK ENVIRONMENT RECOMMENDATIONS

1. Leaders in the health care industry and unions representing RNs should partner with one another to strengthen trust between labor and management.

Restoring trust between labor and management is critical to increasing interest in nursing careers, as well as to retaining experienced RNs.

2. Senior health care executives need to constantly evaluate their organizations, engage RNs in these efforts, and take seriously their assessment of current practices and suggestions for addressing the problems.

The success or failure of any change in care delivery hinges in large part on its implementation by RNs, because they are the largest workforce in hospitals and most other health care organizations.

3. Health care organizations should invest in the retention of RNs.

Instead of relying on quick fixes, health care organizations need to invest their resources in long-term strategies for retaining RNs.

4. Unions representing RNs should place greater emphasis on career security and shared governance.

Today's workers are not only interested in good salaries and safe working conditions; they also want to participate in the management of the organizations in which they work.

5. Health care organizations should invest in state-of-the-art information systems for patient monitoring and record keeping.

Outmoded information systems compound the challenge of complying with the documentation demands of insurers and regulators, making the job of an RN more difficult.

6. The health care industry and unions representing RNs should create partnerships with nursing education programs to provide new graduates with better preparation for clinical practice.

Ensuring adequate clinical education is critical to patient safety as well as RN satisfaction.

EDUCATION RECOMMENDATIONS

7. Increase RN prelicensure entry slots.

Provide funding to establish new RN education programs and expand existing programs.

8. Collect comprehensive data on RN education programs and make this information easily available to the public.

Nursing programs should provide the California Board of Registered Nursing comprehensive data, including average length of time to complete program, average length of time to begin nursing classes, and percent of graduates who successfully pass the licensing examination on the first attempt. This data should be issued by the BRN as public report cards.

9. Redefine nursing faculty to include non-nurses in selected areas.

10. Make nursing programs more accessible to RNs who choose to further their education.

Streamline curricula and expand evening and weekend classes and use of distance learning technology.

11. Increase diversity (race/ethnicity and gender) of nursing students.

Nursing programs should aim programs at the entire “learning pipeline” to provide educational support and enrichment and to target groups traditionally underrepresented in nursing.

12. Expand alternative pathways for RN education.

Maximize the number of persons pursuing a nursing education by investing in programs that provide alternate RN education pathways.

* INTRODUCTION

Background

California is facing a nursing workforce crisis that poses a serious threat to the public's health. Many of the state's hospitals are having great difficulty recruiting and retaining registered nurses (Kucher, 2000). California appears likely to need over 60,000 additional RNs to meet the projected demand for nursing services in 2020 (Coffman & Spetz, 1999).

RNs constitute the single largest occupation in the health care industry. Although the majority of RNs work in hospitals, they also practice in a variety of other settings, including homes, schools, clinics, physicians' offices, long-term care facilities, and public health agencies. They interact more frequently and more closely with patients and their families than almost any other health professional. Consumers rely on RNs to assess, treat, and monitor their diseases and conditions, and to educate them about maintaining health and managing chronic illness. The public will suffer if California does not maintain an adequate supply of RNs with the characteristics and competencies necessary for practice in the new millennium.

The crisis is exacerbated by the poor state of labor management relations in health care. The long battle over minimum nurse staffing ratios has polarized leaders in the hospital industry and the unions that represent many RNs. The seven-week strike by RNs at Stanford University's hospitals in the summer of 2000 was among the longest and most contentious in a series of bitter disputes over wages and working conditions. The public sees angry RNs marching on picket lines and hospital administrators who seem unresponsive to RNs' demands and out-of-touch with employment practices in other industries. These images do little to encourage young women and men to choose nursing over the many opportunities available in other professions.

Purpose

Concerned about the future of California's RN labor market, the California HealthCare Foundation commissioned the UCSF Center for the Health Professions to prepare an objective assessment of California's RN workforce needs. This report summarizes the findings of this assessment and presents strategies for recruiting and retaining sufficient numbers of RNs to meet California's demand for RNs in the 21st century.

Organization

The report is organized in the following manner. Chapter 1 provides a context for the rest of the report by presenting and debunking a set of myths about California's RN workforce. Chapter 2 examines secular trends that affect the supply of RNs and the demand for nursing services in California. Chapter 3 discusses changes in RNs' work environment and working conditions, as well as RNs' concerns about these changes, and presents recommendations to make nursing careers more attractive relative to other opportunities. Chapter 4 addresses opportunities for aligning RN education with employers' needs. Chapter 5 explores the future of RN practice in California. Sidebars interspersed throughout the report profile efforts to address RN workforce and educational challenges in California. These sidebars highlight only a few examples and are intended to illustrate the types of initiatives that might be replicated elsewhere in the state. A series of appendices follows the main body of the report. The appendices contain additional information about the findings from the focus groups and analyses of quantitative data, as well as a detailed discussion of the methodology used to project future supply of and demand for RNs in California.

Resources

Information presented in this report was obtained from a variety of sources. The project team conducted an extensive review of the literature on the RN workforce and RN education. Various sources of data on RNs' demographic characteristics, employment, and education were analyzed. These sources included the National Sample Survey of Registered Nurses (1996), the California Office of Statewide Health Planning and Development's annual surveys of California hospitals (1985 – 1999), and the California

Board of Registered Nursing's sample survey (Barnes & Sutherland, 1999) and annual report on RN education (BRN, 2000). We are especially grateful to the California Board of Registered Nursing for providing us with the data from its sample survey. Additional data were obtained from basic RN education programs in California. Interviews were conducted with state and national leaders in nursing administration and nursing education. To obtain the perspectives of RNs working in staff positions, focus groups were conducted with 99 RNs in four regions of the state.

An advisory committee comprised of leaders in nursing administration and education informed the project team's work. The advisors provided input regarding research methods, findings, and recommendations. Input also was elicited from the leaders of unions representing RNs. The project team benefited greatly from the knowledge and expertise of these individuals. However, the views presented herein are solely those of the authors and are not necessarily those of the California HealthCare Foundation, the advisors, or any of the other individuals who shared their perspectives during the writing of this report.

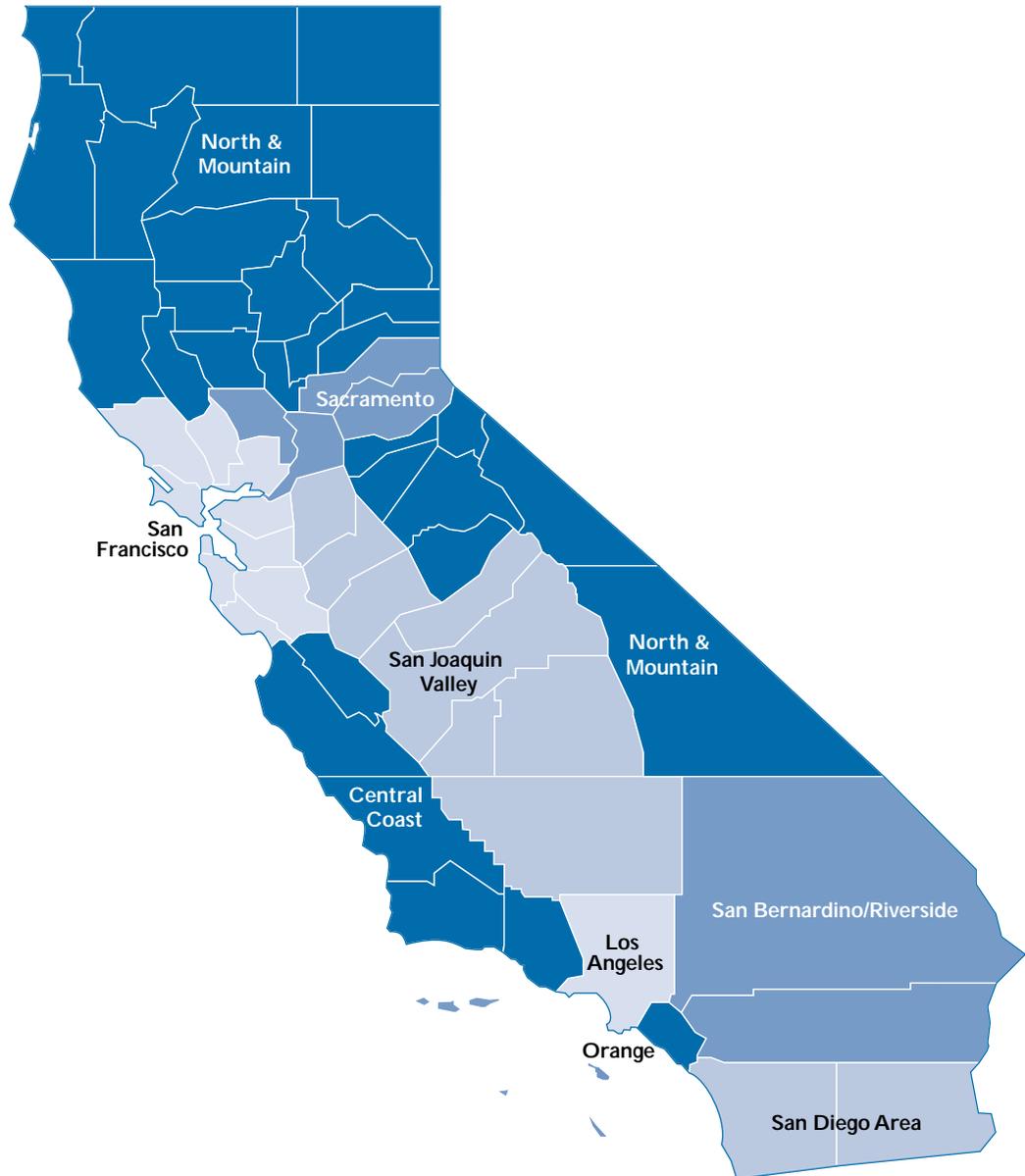
1 CALIFORNIA'S REGISTERED NURSE WORKFORCE: MYTHS *and* REALITIES

As the largest health professional group in the United States health care system, with over 2.5 million members, and as the single largest profession of women, registered nurses occupy a highly visible place in the public's view of health care. Many of the encounters that patients have with this system involve direct and continuing contact with a nursing professional. Nurses are distributed across the continuum of care from public health to clinic to operating room to long-term care facility. Many people have a personal connection to the profession because they have family members or friends who are nurses. People also learn about nursing from the media, which has recently reported on the nursing shortage faced by both California and the U.S., from nursing organizations such as the American Nurses Association, and from nursing unions such as the California Nurses Association.

Despite the many avenues through which the public learns about the nursing profession, many misconceptions and myths exist. Nurses themselves have developed beliefs about nursing that are not supported by data. It is difficult for policymakers to address concerns about nursing shortages, working conditions, and education if they do not have accurate information about the basic characteristics of nurses and the profession. In this chapter, we identify thirteen myths and misconceptions about nursing and present data that describe the profession accurately.

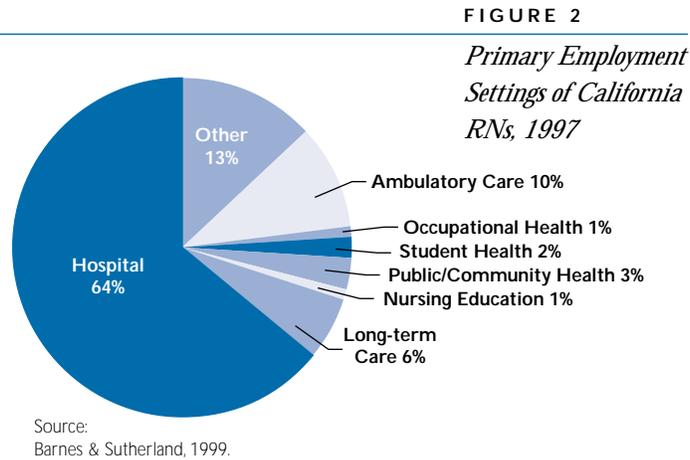
The data presented in this chapter come from a variety of sources. Most were calculated from a 1997 survey conducted by the California Board of Registered Nursing (Barnes & Sutherland, 1999); a large share of additional data was obtained from the 1996 National Sample Survey of Registered Nurses (NSSRN). Where possible, the data are analyzed by region. We divided the state into nine regions, which are depicted in Figure 1: Los Angeles County, Orange County, San Bernardino and Riverside counties, San Diego and Imperial counties, the San Joaquin Valley, the Central Coast, the San Francisco Bay Area, Sacramento, and Northern and Mountain counties.

FIGURE 1

Nine Regions of California**Myth #1: All RNs work in hospitals.**

Nursing has been closely associated with hospitals throughout history. Florence Nightingale, the founder of modern nursing, received her first nursing experience and education in hospitals in the 1800s and established many of the practices and philosophies that underlie the profession. As a result of the close ties between the profession and hospitals, it is often assumed that all nurses work in hospitals. This has never been true, although hospitals are the dominant employer of RNs.

Figure 2 presents the various primary employment settings of California nurses as reported by the BRN (Barnes & Sutherland, 1999). In 1997, 64% of the RNs reported that their main job was in a hospital. The second-largest employer of RNs was ambulatory care, which includes physicians' offices and outpatient surgery centers. Ten percent of RNs work in these settings. Six percent of RNs are employed in long-term care facilities, and over three percent work in community and public health. About 15% of RNs work in other employment settings, including nurse education programs, schools, colleges, occupational health, and home health.



Young RNs are more likely to work in hospitals than are older RNs. The first job of many RNs is in a hospital; as they accrue experience, they are more likely to move to specialized units within hospitals or to non-hospital employment. While nearly 75% of RNs under age 40 work in hospitals, less than half of RNs over age 55 work in this setting (Barnes & Sutherland, 1999).

The share of RNs primarily employed by hospitals from 1980 – 1996 declined from 57% to 51% throughout the U.S., although in California it rose from 58% to 64% (NSSRN, 1996). Employment in ambulatory care has become more common nationwide, although the growth has been more rapid in California. In 1980, 3.5% of California RNs reported that their primary job was in an ambulatory care setting; by 1996 this rate had risen to nearly nine percent.¹ A higher share of California RNs works in ambulatory care settings for health maintenance organizations than does nationally, perhaps because Kaiser Permanente is a large employer in California.

There is some regional variation in the share of California RNs primarily employed by hospitals. The shares range from a low of 59% on the Central Coast to a high of 69% in the San Bernardino/Riverside area (Barnes & Sutherland, 1999). There is no clear pattern differentiating regions or urban versus rural areas.

¹ There is a small difference in the share of nurses reported to be working in ambulatory care between the NSSRN and the BRN surveys. This difference is probably a result of the relatively small sizes of the surveys' samples, and is not statistically significant.

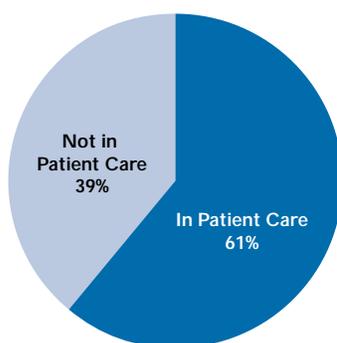
Many RNs report that they have multiple employers. According to the BRN (Barnes & Sutherland, 1999), 21% of California RNs have more than one job. There is relatively little regional variation in the rate of RNs holding multiple jobs; however, there is substantial variation by type of primary employer. About 20% of RNs whose main job is in a hospital have other jobs. Nursing educators are most likely to hold multiple jobs, with 38% doing so. In contrast, less than 13% of RNs in student and occupational health settings have more than one employer.

Myth #2: All RNs work in direct patient care.

The public image focuses on the direct care to patients provided by RNs. Indeed, as discussed later in this report, nurses find a great deal of satisfaction in patient care. Nonetheless, a substantial share does not perform direct patient care as a primary responsibility in their main job, as reported by the BRN (Barnes & Sutherland, 1999)

FIGURE 3

Percent of Employed California RNs Who Work in Patient Care, 1997



Source:
Barnes & Sutherland, 1999.

and illustrated in Figure 3. In 1997, only 61% of RNs reported that their primary employment involved direct patient care. Other responsibilities included management, nurse education, patient teaching, utilization review, research, and a variety of other activities. There is not a large degree of regional variation in the percent of RNs who report their main

responsibility as patient care: about 59% in San Diego/Imperial Valley and the Central Coast and over 64% in Sacramento and the San Francisco Bay Area. There is no clear pattern differentiating regions or urban versus rural areas.

Myth #3: There is a large reservoir of RNs who would reenter the workforce if wages increased and working conditions improved.

It is widely believed that there is a large number of RNs who are not presently working as nurses who would seek nursing employment if wages and/or working conditions were better. While this may be true of some, most nonworking RNs in

California are unlikely to return to nursing. There are several pieces of evidence that support this contention.

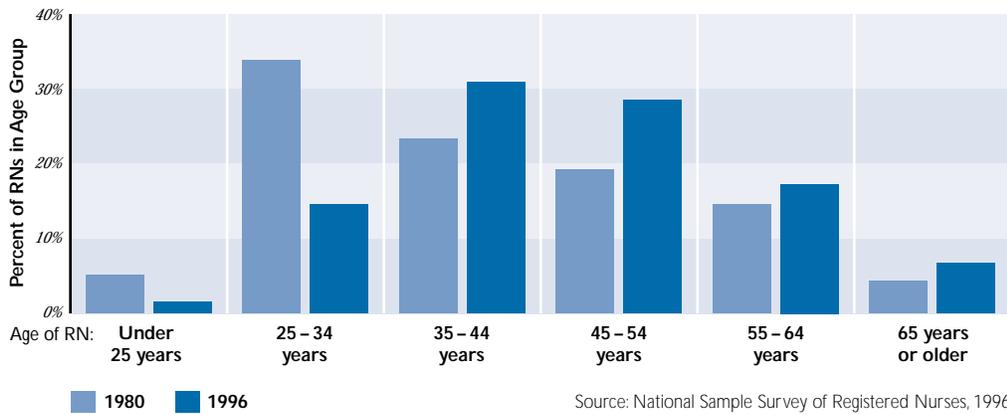


FIGURE 4
Age Distribution of California RNs, 1980 and 1996

According to the BRN (Barnes & Sutherland, 1999), over 83% of California RNs were employed in nursing in 1997. There was some variation in employment rates by region; however, in most parts of California, over 80% of RNs were employed in nursing. NSSRN (1996) data indicate that while from 1980 to 1992 there was a general trend toward increased employment, by 1996 there was a slight decrease in employment. This decrease may represent a departure of RNs who could reenter the workforce. However, the demographics of the nursing workforce suggest that this is not likely.

Figure 4 presents the age distribution of California RNs in 1980 and 1996, as reported by the NSSRN (1996). As in the U.S., California’s nursing workforce is aging, with fewer RNs in the younger age groups and more in the older age groups. Age is negatively associated with employment in nursing, as illustrated in Figure 5 and reported by the BRN (Barnes & Sutherland, 1999). Older RNs are likely to be retiring or pursuing other interests. Consequently, one should not expect that these RNs would reenter the nursing workforce.

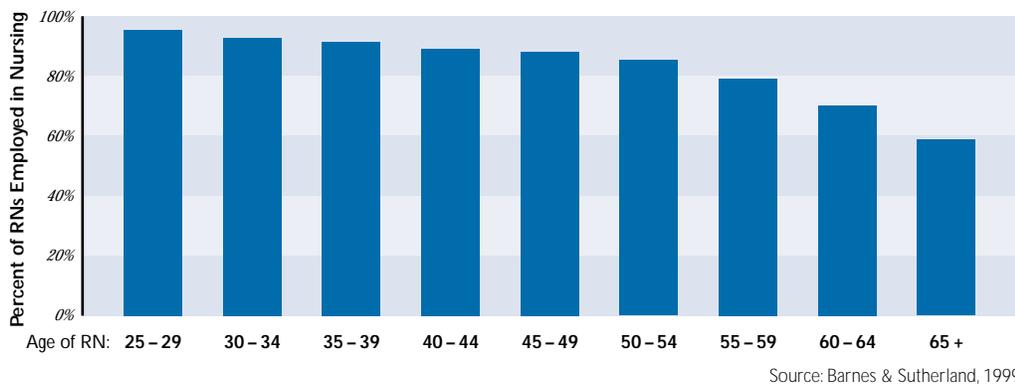


FIGURE 5
Percent of California RNs Employed in Nursing, By Age, 1997

One potential source for an increase in the supply of nursing labor is an increase in the number of hours worked by RNs employed part-time. Approximately one-third of California RNs work part-time; however, the average number of hours worked weekly by all RNs is quite high — 36 hours. Thus, part-time RNs work an average of 28 hours a week. If all part-time RNs increased their employment to full-time, the overall RN labor supply in California would increase by approximately 11%.

RNs who left nursing due to dissatisfaction with the profession or their job are another potential source to increase the supply of nursing labor. The BRN (Barnes & Sutherland, 1999) data demonstrate that low salaries and poor working conditions are not the main reasons RNs left nursing: 20% had retired, and another 18% stated that family responsibilities motivated them to leave nursing. Salary was an insignificant factor, with only two percent of RNs reporting low salaries as their reason for leaving nursing. (This low share is somewhat surprising, since RN salaries did not keep pace with inflation in most of the 1990s.) However, a considerable share — 20% — reported that they left nursing because of dissatisfaction with the profession or their job or due to job-related stress.

A simple calculation can predict the number of RNs who might reenter nursing if working conditions or their perception of the profession improved. There were 235,566 RNs licensed and living in California in 1999, according to the BRN (Barnes & Sutherland, 1999). Of these, 17%, or 40,046, do not work in the nursing profession. Of these, 20%, or 8,009, left the profession due to satisfaction or stress issues, and may be candidates for reentry into the nursing workforce if working conditions improved. This inflow of RNs would increase the state's nursing-employed workforce by four percent, which would help alleviate the current nursing shortage, but would not provide a long-term solution. In the long run, California's nursing workforce is continuing to age, and expected retirements will rapidly outpace new graduations in the coming decades.

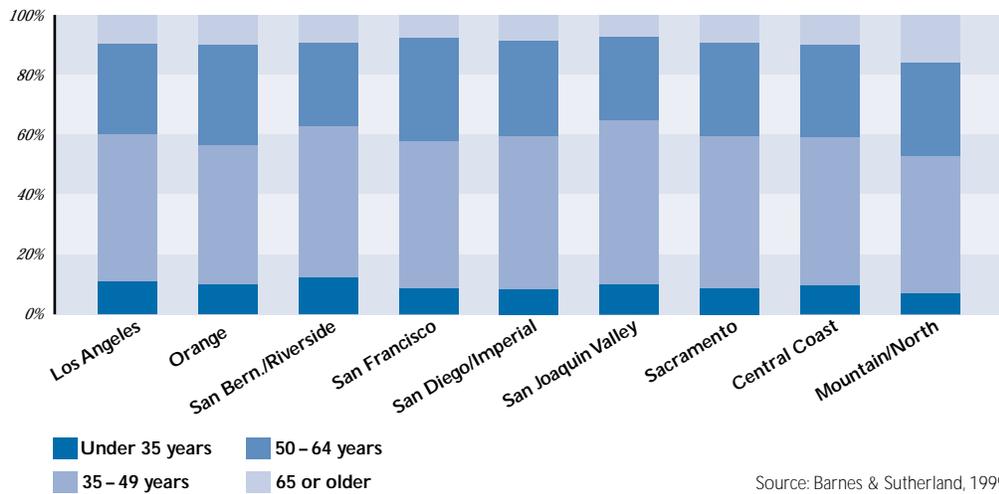
Myth #4: All regions in California have an older RN population that will retire soon.

While the RN population of California as a whole is growing older, the age distribution of RNs varies significantly across regions of the state. As seen in Figure 6, the rapidly

growing San Bernardino/Riverside and San Joaquin Valley areas have a younger RN workforce than other regions. Areas with slower population growth, such as the rural Mountain and Northern counties, Orange County, and the San Francisco Bay Area, have older RN populations. In fact, in the Mountain and Northern counties, nearly 50% of RNs are over age 50, and 16% are over age 65. Future nursing shortages caused by the retirement of these older RNs are likely to appear in this area first. Regions with rapid population growth may face less severe shortages, because younger RNs migrate into these areas at higher rates than elsewhere in the state.

FIGURE 6

Age Distribution of California RNs, by Region, 1997



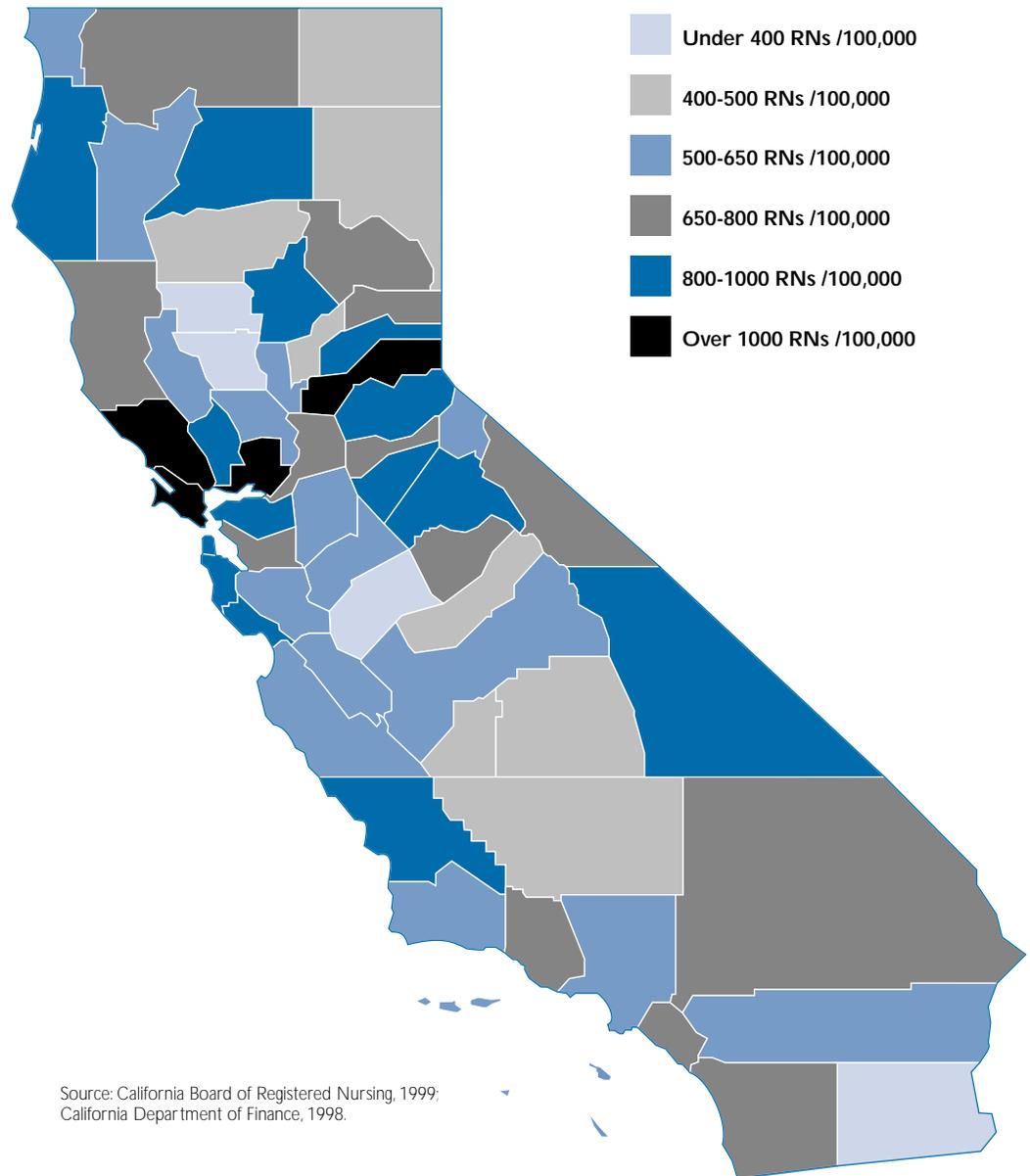
Myth #5: There are too few nurses in rural areas to meet staffing needs.

In the future, rural regions of California may face a more severe shortage of RNs because the RN population is older in these areas. However, rural areas do not uniformly have fewer RNs than urban regions, as seen in Figure 7. This figure presents the RN-to-population ratio for each county in California in 1999. The least populated regions of California — the Mountain/North counties — have a wide range of RN-to-population ratios. Some rural counties, such as Imperial, have fewer than 400 RNs per 100,000 population, while other counties, such as Shasta and Humboldt, have double that ratio. Thus, one should not consider rural counties uniformly when discussing nurse supply and shortage.

The rapidly urbanizing Central Valley differs from the Sierra counties and Northern California in that it has relatively low RN-to-population ratios throughout the region. Merced County has fewer than 400 RNs per 100,000 population, and nearly every other county in the Central Valley has no more than 650 RNs per 100,000 population. Fortunately, the Central Valley's RN population is relatively young, so their RNs are more likely to be employed in nursing than RNs in other regions.

FIGURE 7

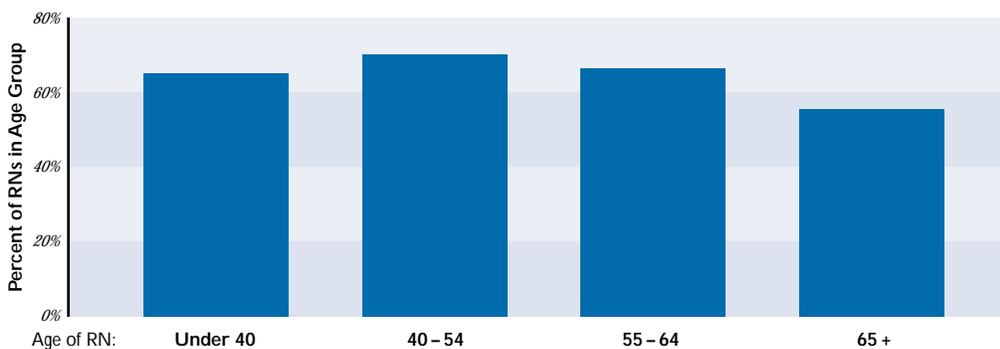
*RN-to-Population
Ratios, by County,
1999*



Source: California Board of Registered Nursing, 1999;
California Department of Finance, 1998.

Myth #6: Most RNs will not relocate.

Labor economists and others who study nursing employment often assume that most RNs do not change jobs and are not geographically mobile because they are married and their husbands' careers are more important in determining employment and relocation decisions (Yett, 1975). However, the data do not fully support this assumption. According to the NSSRN (1996), while less than 10% of RNs over age 55 changed jobs between 1995 and 1996, a significant share under age 40 (28%) and between the ages of 40 and 54 (17%) changed jobs in those years. The willingness of RNs to move to a new job does not necessarily reflect geographic mobility. Other data indicate that relocation is an important factor in job switching. In the NSSRN (1996) survey, over 20% of RNs under age 40 who changed jobs said they did so because they relocated. Unfortunately, we do not know if they relocated because they wanted to move or because their spouses' employment location changed.

**FIGURE 8**

Percent of California RNs Who Are Married, by Age of RN, 1997

Source: Barnes & Sutherland, 1999.

It is likely that married RNs are less mobile than unmarried RNs; thus, the share of married RNs is an important factor in assessing the overall mobility of the RN workforce. Figure 8 presents the share of married RNs by age; 67% of California RNs are married (73% of U.S. RNs are married). The likelihood of an RN's being married varies with age: RNs over age 65 are least likely to be married; 65-70% of RNs in other age groups are married. Another factor in assessing overall mobility of married RNs is salary. According to the BRN (Barnes & Sutherland, 1999), 54% of married RNs earn no more than half of their household's income and 46% earn more than half. The importance of nursing salaries to overall household earnings may give married RNs more dominant roles in family, career, and relocation decisions.

Myth #7: All RNs are white.

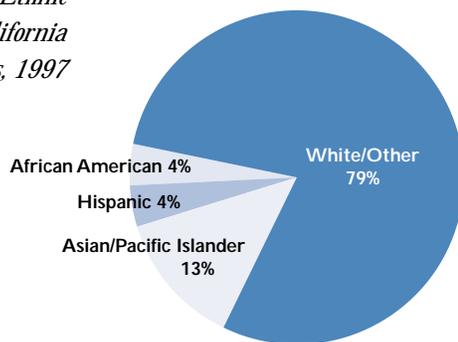
The dominant image of the nursing profession is that of a white female around 45 years old. While the stereotype matches the average (only about six percent of RNs are male and the average RN age is 48 years), the racial profile of nursing in California is changing. As seen in Figure 9, California RNs are still predominately white, but there are significant shares of Latino, African American, and Asian RNs. Over half of California's Asian RNs are Filipino.

Although the racial and ethnic mix of RNs does not match the diversity of California's population, newly graduated RNs more closely reflect California's demographics. There has been a substantial increase in the shares of non-white nursing graduates: in 1998, graduates were 14% Latino, eight percent African American, and 23% Asian/Pacific Islander. Both Asians and African Americans are overrepresented among new RN graduates, relative to California's population. Latinos remain underrepresented, since over 30% of California's population are Latino. Nonetheless, there have been substantial gains in the number of Latino RNs in California.

Nonwhite RNs are not distributed uniformly across California. In some regions of the state, there are significant shares of Asian, Latino, and African American RNs, while other regions have a 90% white RN workforce. The Los Angeles area boasts the largest share of nonwhite RNs, with 22% of that region's RN workforce being Asian, nine per-

cent being African American, and five percent being Latino. Only the San Bernardino/Riverside area has a large share of Latino RNs (eight percent). All other regions have substantially smaller shares of non-white RNs. The Mountain/North region of the state has the smallest share, with white RNs comprising 84% of the workforce.

FIGURE 9
*Racial/Ethnic
Mix of California
RNs, 1997*



Source:
Barnes & Sutherland, 1999.

Myth #8: There is a large supply of foreign-educated RNs throughout the state.

When nursing shortages arise, hospitals frequently recruit RNs from overseas. A large share of California’s foreign-born RNs is from the Philippines, and there are substantial numbers of Canadian and Irish nurses, as well. However, not all regions of the state have large shares of foreign-educated RNs, as seen in Figure 10. In the Los Angeles area, 17% of RNs are foreign-educated, which is not surprising, since a large share of LA’s general population is foreign-born. Outside Southern California and the San Francisco Bay Area, the share of foreign-born RNs is quite low, averaging around three percent.

Some regions likely will not be able to recruit foreign RNs to fill gaps in the nursing workforce. Immigrants prefer to settle in regions where a substantial community from their home country resides, and many immigrants choose their destination based on networks of family and friends. The Mountain/North, Sacramento, and Riverside/San Bernardino regions have comparatively small foreign-born populations, and thus might face the greatest difficulty recruiting foreign-educated RNs to address nursing shortages.

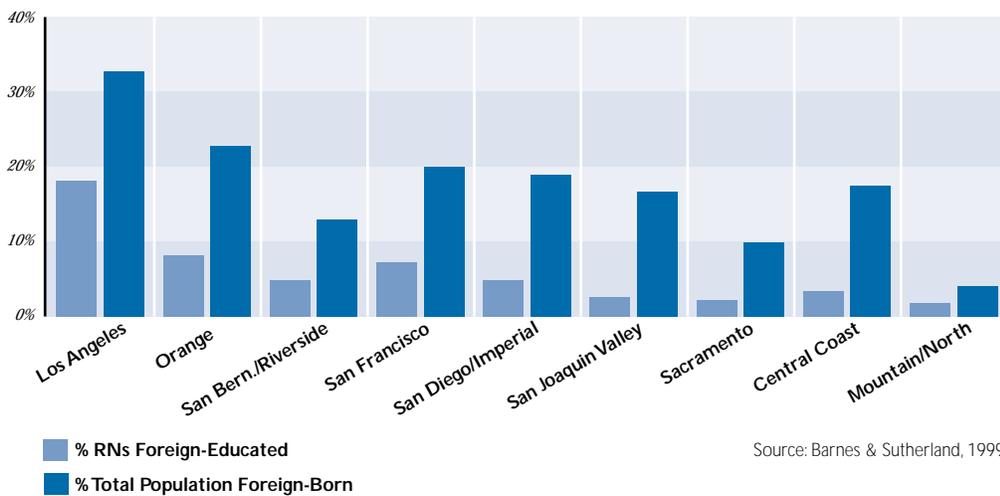


FIGURE 10
Percent of California RNs Educated Overseas, and Percent of Total Population Foreign-Born, by Region, 1997

Source: Barnes & Sutherland, 1999.

Myth #9: RNs are not interested in higher education.

Because a large share of RNs report that their basic RN education was from diploma and associate degree programs (30 and 40%, respectively, in 1997), it is often assumed that RNs are not interested in higher education. A closer examination of the data reveals

the fallacy of this perception. As reported by the NSSRN (1996) and illustrated in Figure 11, 35% of RNs report that their highest nursing education is a Bachelor of Science in nursing (BSN); 11% hold master's and/or doctoral degrees in nursing. Nearly one-fourth of California RNs have received nursing degrees beyond that of their primary nursing education.

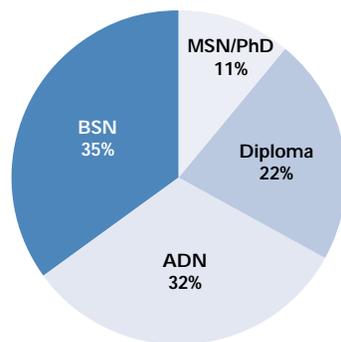
The share of RNs entering the nursing profession with baccalaureate and master's degrees is rising. Forty-four percent of RNs under age 40 received a BSN for their basic nursing education. Older nurses were significantly less likely to have received a BSN for their primary education.

A wide variety of specialty certifications is available to RNs, enabling them to continue their nursing education outside a degree program. According to the BRN (Barnes &

Sutherland, 1999), approximately 22% of California RNs have some sort of certification. Public health certification is held by 13% of RNs, and five percent are nurse practitioners. Other certifications among the 22% are nurse midwife, nurse anesthetist, and psychiatric nurse. The BRN did not report on the other certifications RNs can receive as a part of their continuing education.

FIGURE 11

Highest Education Level of California RNs, 1996



Source:
National Sample Survey of
Registered Nurses, 1996.

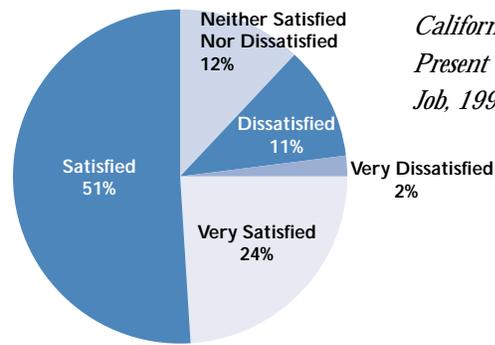
Myth #10: Nurses are extremely dissatisfied with their jobs and with the profession.

Recent reports of strife in the nursing profession have suggested that RNs are extremely dissatisfied with their jobs and with the profession of nursing (Gray, 2000; Kucher, 2000). As discussed in Myth #3, the BRN (Barnes & Sutherland, 1999) indicated that 20% of RNs who left nursing did so because of dissatisfaction with the profession or their job or due to job-related stress. The survey also asked RNs to report their degree of satisfaction with their present or most recent job. As seen in Figure 12, in 1997, 75% of RNs stated that they were satisfied or very satisfied with their jobs, while 13% were dissatisfied or very dissatisfied. This degree of dissatisfaction is disturbing, but the data indicate that the vast majority of RNs are satisfied with their work.

Another indicator of satisfaction with the nursing profession is the share of RNs who choose to work outside nursing. As discussed above, employment rates in nursing are very high, with over 83% of RNs working in nursing. Overall, approximately 20% of RNs who do not work in nursing are employed in another field. Thus, the majority of RNs who do not choose to work in nursing are not working at all.

FIGURE 12

Satisfaction of California RNs with Present or Most Recent Job, 1997



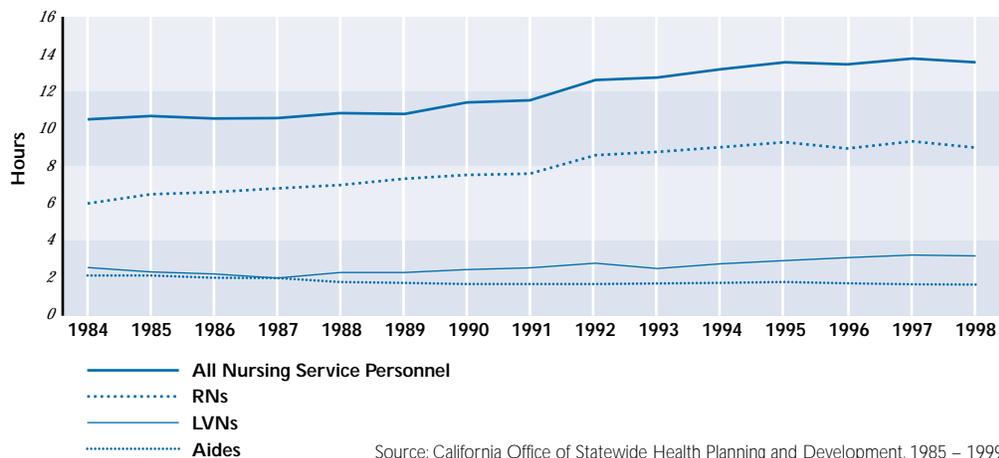
Source: Barnes & Sutherland, 1999.

Myth #11: RN staffing has dropped to extremely low levels in California hospitals.

In the focus groups conducted for this study, many RNs complained about low staffing ratios. However, the data do not indicate that staffing ratios have declined over the past decade, as seen in Figure 13. This figure presents the average annual number of nursing hours worked per case-mix adjusted patient day in California hospitals from 1984 through 1998, as reported by the California Office of Statewide Health Planning and Development (1985 – 1999). The number has remained stable since the mid-1990s (Spetz, 2000). However, there may be other factors that have increased the need for RNs in hospitals, including increased illness levels of patients (not measured well by most case-mix indices); shorter lengths of stay; and new, sophisticated technologies.

FIGURE 13

Average Nursing Service Personnel Hours per Case-Mix Adjusted Patient Day in California Hospitals, 1984-1998



Source: California Office of Statewide Health Planning and Development, 1985 – 1999.

Until the effects of these changes in the delivery of hospital care are examined more thoroughly, we are unable to objectively assess complaints about staffing levels in hospitals.

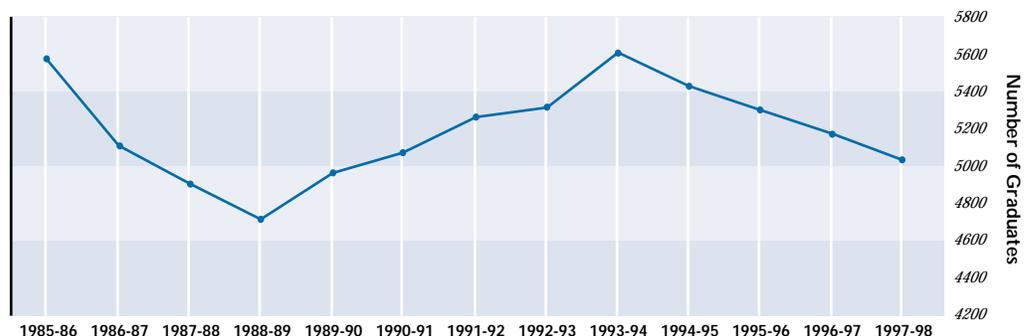
Myth #12: The number of RN students has declined because there are not enough people interested in the profession.

The number of graduates from basic RN education programs has been fairly constant in California over the past 15 years, at around 5,000 graduates per year (Figure 14). The number of graduates usually rises when there is a recession (e.g., during 1993–94, there were nearly 5,600 graduates) and declines during good economic times (e.g., during 1997–98, there were approximately 5,050 graduations). Nationally, there was an increase in the number of RN graduates between 1988–89 and 1994–95 (National League for Nursing Center for Research in Nursing Education and Community Health, 1997). However, recent data suggest that the number of RN graduates may be declining. According to the American Association of Colleges of Nursing (1999), the number of enrollments in BSN programs declined 17% between 1994–95 and 1998–99.

California State University (CSU) and community college officials report that a large number of qualified applicants are turned away from basic RN education programs because of lack of resources. Tabulations prepared by CSU officials indicate that in 1997, 352 applicants (44%) to CSU RN training programs who met academic eligibility requirements were denied admission because not enough spaces were available (Sprottle, 1998). A representative of California's community colleges noted that an additional 5,000 potential RN students are not being trained

FIGURE 14

*Graduations
from Basic RN
Education Programs
in California*



Source: National League for Nursing Center for Research in Nursing Education and Community Health, 1997.

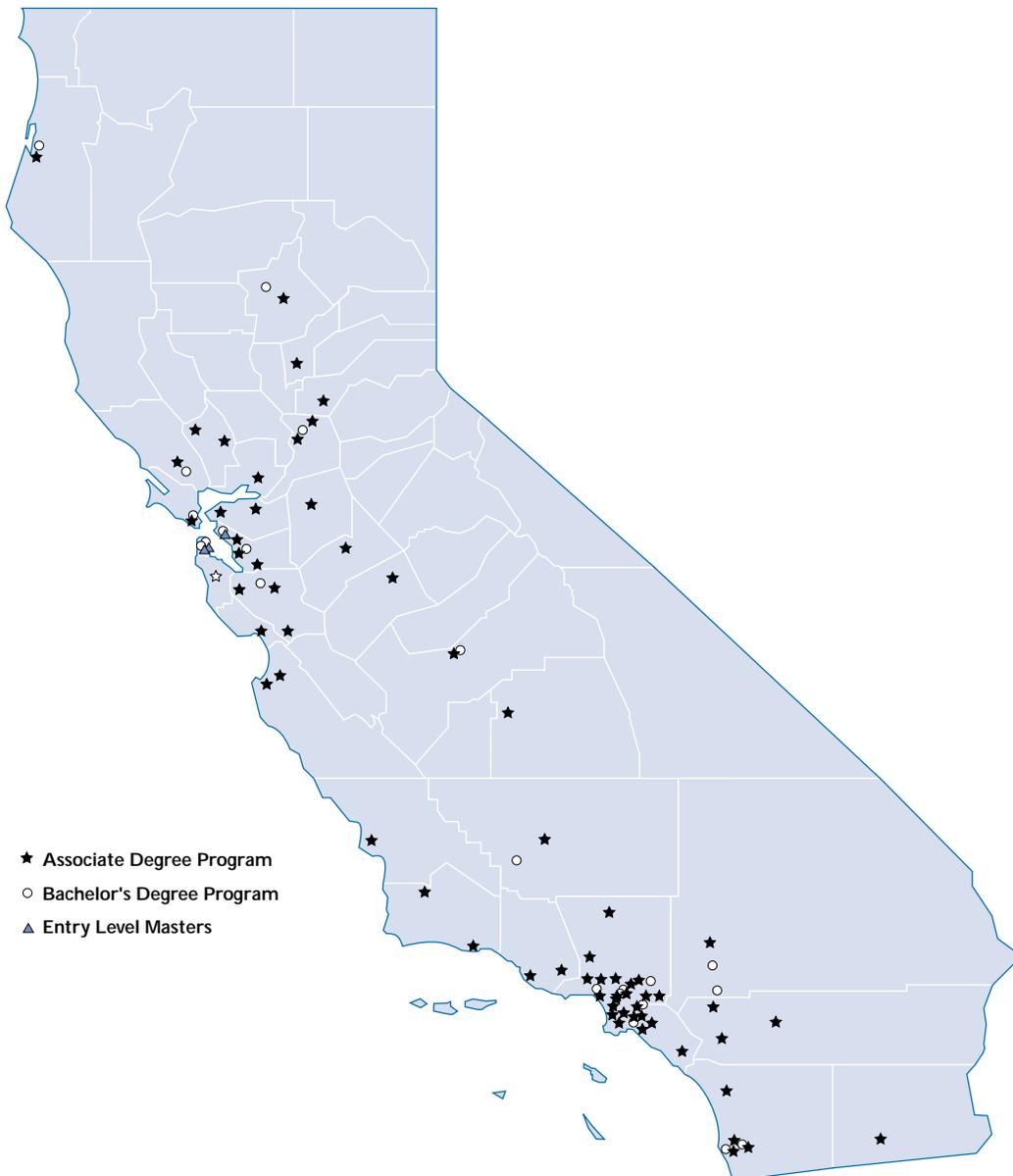
in the community college system because of lack of resources (Bullock, 1998). The first step toward increasing the number of new graduates in nursing is ensuring that all prospective RNs can obtain the education they desire.

Myth #13: RN education is available throughout the state.

Prospective RNs can seek entry-level education from community college associate degree programs and public and private college and university baccalaureate and master's degree programs. In both cases, public colleges and universities are the

FIGURE 15

RN Education Programs in California



predominant providers of nursing education. Twenty-six of California's 58 counties do not have any type of RN education program; most of these are in the Mountain/North counties. There is a small correlation between the RN-to-population ratio in a county and whether the county has an RN education program (correlation=0.245). Only 13 counties have a baccalaureate program in nursing; most of these programs are located in the Los Angeles, San Francisco, and San Diego areas. Eleven of these 13 counties also offer graduate programs in nursing. An expansion of nursing or distance learning programs would provide access to nursing education to many prospective RNs who cannot travel for education.

2 SECULAR TRENDS AFFECTING CALIFORNIA'S REGISTERED NURSE WORKFORCE

The challenges facing nursing exist within the broader context of secular trends that are impacting the U.S. population. These trends are likely to affect both the demand for health care and the nature of work. In crafting policy strategies to address current and future nurse workforce issues, it is essential to understand and incorporate these broader issues.

The Aging of the Population and Workforce

The average age of the U.S. population will continue to rise through the next century; as life expectancy continues to increase, the proportion of elderly in the population will continue to grow. The U.S. Census Bureau (1997) projects the number of persons over 65 years old will grow from 13% of the population in 1995 to 20% by 2050, and the population over 85 years old will more than double between 1995 and 2030. As people age they have more illnesses and use more health care services than younger adults (Buerhaus, 1998). With a larger proportion of the very old in the population, the U.S. will see higher demands for nursing care. For example, of those 85 years or older, 15% of men and 25% of women require nursing home care (Schneider & Guralnik, 1990).

In addition, the average age of workers in the U.S. is rising, including the average age of nurses. The Institute of Medicine warned that the aging of the RN workforce may have serious implications for hospital nursing practice, including the inability of older nurses to perform some of the physical duties required, such as lifting or bathing patients (Wunderlich *et al.*, 1996).

The Growing Diversity of the Population

The number of nonwhite Americans is expected to rise by 50% between 2000 and 2020 (U.S. Census Bureau, 2000). In California, the trend is even more pronounced: whites represent 48% of the population in 2000; that number is projected to drop to 36%

by 2020 (Campbell, 1996). In addition, nonwhites represent a larger proportion of younger Californians, including 60% under 30, which is the bulk of the future workforce; in 2000, the estimated median age of whites is 39 and Latinos is 25 (California Department of Finance, 1998).

Many racial and ethnic minorities are underrepresented in the California nursing workforce (Barnes & Sutherland, 1999). The nursing profession will have the opportunity as well as the responsibility to ensure that the future nursing workforce represents the diversity of California. Studies have documented that nonwhite health professionals are more likely to provide care to nonwhite racial and ethnic groups (Cantor *et al.*, 1996; Komaromy *et al.*, 1996; Rabinowitz *et al.*, 2000). In addition, there is some evidence that patients are more satisfied with health professionals of their own race/ethnicity (Saha *et al.*, 1999; Saha *et al.*, 2000).

Wider Range of Career Opportunities for Women

Because historically most RNs have been women, nursing also is affected by changes in career opportunities for women. Never before has such a wide range of careers been available to women. In addition, more women than ever are earning college degrees and studying in fields traditionally dominated by men (National Center for Education Statistics, 2000). It has been suggested that with these additional career opportunities, women would be less likely to choose a traditionally female-dominated career such as nursing (Buerhaus *et al.*, 2000). However, as reported by Astin (1998) an annual survey of 350,000 first-year college students across the U.S. indicated that the percent of students planning on a career in nursing did not drop between 1966 and 1996, remaining at five percent. In fact, the percent of freshmen men aspiring to nursing increased slightly from .1% to .5%. These numbers are especially impressive when compared to the rates of decline in interest in other traditionally female-dominated professions; for example, for first-year college students aspiring to a teaching career (K–12), the number of women dropped 20% from 1966 to 1996, while the number of men dropped only 5.6% (Astin, 1998). In addition, as reported earlier in this report, the number of graduates of basic RN education programs in California has been fairly constant over

the past fifteen years, at around 5,000 graduates per year (National League for Nursing, 1997).

Even with interest in nursing holding steady, the additional career opportunities for women eventually may have an effect on nursing. Those born between 1960 and 1980, known as “Generation X,” often come to the work environment with a different set of values about work and lifestyle than previous generations, including an expectation that they will be able to more evenly balance work and family responsibilities, and a desire for flexibility and autonomy in their work (Ernst, 2000). Women who choose nursing today may have different reasons for doing so than women did thirty years ago. The average age at which RNs graduate from a nursing program and enter practice has been steadily increasing. In 1988, the average age at graduation was 23 years; in 1996 it had increased to 33 (Wunderlich *et al.*, 1996; NNSRN, 1996). In addition, a greater proportion of RNs is entering nursing programs with a non-nursing, post-high school educational degree (NNSRN, 1996). Current high school students, however, may be discouraged from entering nursing; in particular, female students who excel in math and sciences, who formerly may have been encouraged to enter nursing, now often are encouraged to pursue a medical or science career, instead (Gray, 2000). Currently, more women than men are aspiring to medical careers and obtaining baccalaureate degrees in the biological sciences (U.S. Department of Education, 1997; Astin, 1998). Thus, many students who have the skills and knowledge to make excellent nurses may choose another career that may be considered more financially and/or intellectually rewarding.

Informational Campaigns

CNCC: Coalition for Nursing Careers in California

The Coalition for Nursing Careers in California (CNCC) was formed with one goal in mind: to enhance the image of nurses, thereby increasing the appeal of the nursing profession relative to other careers. CNCC regards the nursing shortage as a public health crisis in the making, and has set a goal to achieve an adequate and diverse nurse workforce by September 2005.

CNCC envisions creating a multimedia image campaign similar to the advertising campaigns for the teaching profession and the armed services. The multimedia campaign will include a Web site and print, television, radio, and billboard advertisements. CNCC is soliciting community foundations to finance this work.

CNCC, composed of representatives of industry and nursing education, is supported by professional organizations. To date, CNCC has presented to over 2000 health care professionals, raised seed money to fund the initial work, and launched a fundraising campaign. The Web site www.Choosenursing.com will be launched in early 2001 with a grant from *NurseWeek*.

Toni Casal, the co-director of the program, said that CNCC understands that the nursing shortage is a complex problem that will require many components of change to solve. Casal acknowledges that an image campaign will not work unless there are significant reforms in nursing: “An image campaign will only work if it is done in concert with policy changes, reforms to nursing education, and improvements to job satisfaction.”

Nursing schools' recruitment strategies may have to be altered to take advantage of the different reasons people are attracted to nursing. They may need to focus more of their efforts on highlighting positive aspects of the career, to encourage more people to pursue it. In addition, employers will need to address changing job expectations.

THE CHANGING NATURE OF WORK

In certain occupations, the nature of work — such as where, when, and how work is done — has started to change (Bureau of Labor Statistics, 2000). Employees are now demanding more from their employers, in terms of career goals, compensation, and workplace flexibility (Ernst, 2000). The tight labor market is spurring many employers to meet these demands to attract the most talented employees. Faced with a nursing shortage, health care organizations will have to work especially hard to recruit and retain qualified nurses.

Changes in Tenure

Repeated rounds of layoffs over the last 30 years sent a strong message to Americans that no employee was immune from layoffs, no matter how many years she or he worked for an employer. Employers sent a clear message that they were not loyal to their employees, and that staffing cuts were always an option when costs needed to be slashed to maintain profits. Perhaps in response, employees, too, decreased their loyalties, particularly during tight labor markets. Knowing that long tenure with a single employer will not guarantee job security, employees are more willing to change jobs than they had been in the past. In nursing, the current trend to offer signing bonuses to experienced nurses is providing another incentive for RNs to change employers (Kucher, 2000). Across all age groups, the median years of tenure with current employers decreased from 1983 to 2000 (Bureau of Labor Statistics, 2000). This means that employers will have to do more to retain their employees, especially in tight job markets.

Demand for Updated Job Skills/Continuing Education

To compete in this age of new technology, employers are demanding higher skills of their employees (U.S. Department of Labor, 1999). Employees want to know that they

will be kept up-to-date with technology, and that their jobs will assist them in achieving their long-term career goals. As a result, many employees are now insisting on more on-the-job training and continuing education. Employers who do not offer such benefits are seen as dead-end in this rapidly changing technological environment (Ernst, 2000). To be competitive with other firms, employers must invest in training.

Demand for Increased Flexibility — Schedules and Worksite

Data from the Bureau of Labor Statistics (1998a; 1998b) show that employers have started to provide their employees with more flexibility in scheduling and more options to do some of their work from home. The proportion of U.S. workers with flexible schedules has risen steadily since the 1980s, increasing more sharply in the 1990s. The percent of full-time wage and salary workers with flexible schedules increased from 15.1% in 1991 to 27.6% in 1997. The number of wage and salary workers doing paid work at home grew by over 70% between 1991 and 1997.

For some workers, the increased amount of work to be done at home may impinge upon their non-work home life. Even for those who technically do not work at home, certain technologies — such as personal computers and cellular telephones — may turn them, essentially, into “on-call” employees, thus reducing non-work, family time, which may not be attractive to all employees. To attract employees who wish to leave work “at the office,” health care employers might emphasize the more structured nature of nursing, including predictable hours and no work to take home. They also might highlight nontraditional schedules, such as days off during the workweek.

Increased Variety of Benefits

Some employees have started to offer a larger variety of benefits, including stock options and on-site daycare, as well as options that are less costly to the employer, such as employee appreciation programs or meals at work. Workplace reforms not only improve employee satisfaction and retention, but some also increase productivity (U.S. Department of Labor, 1999). Many of these programs are helpful to working parents who are trying to balance family and career responsibilities. Younger workers may place a greater priority on

family over career than they have in the past. In a 1998 survey, young adults between the ages of 18 and 30 reported that their most important goal was to “have a strong family,” far ahead of career and money (Peter Hart Associates, 1998; Dionne, 1998).

Conclusions — Implications for Nursing

While some of the changes implemented in other industries are not feasible for many jobs in nursing, the trends suggest increased job expectations of workers in the nursing labor force. Data from the U.S. Department of Labor (1999) that suggest that many employees are no longer willing to tolerate inflexibility from their employer and prefer to work in an environment that is more supportive of their needs were verified by the RNs in our focus groups. The focus groups suggested that nurses might not continue to tolerate poor working conditions, such as mandatory overtime, the inability to take accrued vacation or sick leave, lack of support from supervisors, and no recognition for quality work. To retain employees in the future, employers will have to make a concerted effort to provide a more supportive work environment, including implementing work policies that support employees with families, training managers to address job stressors, and providing recognition for quality work.

3 THE WORK ENVIRONMENT FOR REGISTERED NURSES *in* CALIFORNIA

As critical as the broader social changes are, nurses are more directly affected by changes in their immediate work environment. The RN work environment must be understood within the context of the dramatic changes that have taken place in health care over the last decade. Efforts to contain health care costs prompted changes in reimbursement for health care services that, in turn, led to the consolidation of health care organizations and the reengineering of their staffs. These developments generated considerable anxiety among RNs and, in many cases, created dramatic changes in their roles and responsibilities. The effects of these trends were most pronounced in hospitals, which are the health care organizations that employ the largest proportion of RNs. This chapter addresses the challenges in the RN work environment produced by changes in health care delivery and financing. It also discusses the results of focus groups held with staff RNs, who shared their experiences and opinions of the changing RN work environment.

CHANGES IN HEALTH CARE FINANCING AND DELIVERY

Movement to HMOs and Other Managed Care Plans

During the recession of the early 1990s, employers and the government became increasingly concerned about the cost of employer- and government-sponsored health insurance benefits. Their efforts to contain spending precipitated the rapid growth of health maintenance organizations (HMOs) and other forms of managed care. These trends were especially pronounced in California. As reported by Schauffler *et al.* (2000), by 1999, 94% of Californians with employer-sponsored health insurance were enrolled in some type of managed care plan, 53% in HMOs. The state launched an ambitious Medi-Cal managed care initiative under which 46% of Medi-Cal beneficiaries were enrolled in managed care plans by 1998. The number of elderly Californians enrolled in Medicare managed care plans also grew dramatically, rising from 19% in 1993 to 40% in 1999.

Purchasers for large employers, most notably the California Public Employees Retirement System and the Pacific Business Group on Health, bargained aggressively with health plans and premiums rose only modestly (Luft, 1996).

Consolidation of Health Plans

To compete successfully for contracts with large employers, many of which had employees at multiple locations in California and other states, health plans needed to develop large networks of physicians and health care facilities. This led to numerous mergers and acquisitions, which resulted in the domination of the market by a small number of health plans. In 1999, the five largest health plans in California accounted for approximately 80% of persons enrolled in managed care plans (Abate, 2000). This consolidation weakened the leverage of individual hospitals and other health care organizations in negotiating reimbursement rates.

Changes in Ownership and Reimbursement

These changes in health plans and purchasing triggered several major developments in health care delivery. First, fierce competition for managed care contracts led to the consolidation of hospitals and other types of health care facilities into larger multi-site organizations that offered a wide range of services. Spetz *et al.* (1999) reported that between 1986 and 1996, a total of 296 California hospitals (approximately 70%) changed ownership. As of 1999, half of California's hospitals were affiliated with multi-site hospital systems; six hospital systems operated over one-third of California's hospitals. Some of these mergers and acquisitions were horizontal in nature, such as the growth of hospital systems such as Catholic Health Care West, Sutter, and Tenet. In other cases, consolidation was vertical. Hospitals often took the lead in developing integrated delivery systems that combined hospitals, physician practices, long-term care facilities, home health agencies, and, in some cases, health plans. In the focus groups, RNs said that these transactions generated considerable anxiety among RNs and other health care workers regarding job security, working conditions, and wages and benefits.

Reimbursement cuts are a second major outgrowth of the drive to contain health care costs. These cuts include discounts negotiated with commercial managed care plans and reductions in Medicare reimbursement mandated under the Balanced Budget Act of 1997 (Spetz, *et al.*, forthcoming). The effects of reimbursement cuts on the finances of hospitals have been compounded by the high percent of uninsured Californians. Employers in California are much less likely to offer health insurance than firms nationally (Kaiser Family Foundation *et al.*, 2000). In 1998, 24% of Californians were uninsured, compared to 18% nationwide (Schauffler *et al.*, 2000). As a consequence, health care organizations in California provide a large amount of uncompensated care. These reductions in revenue have increased pressure on hospitals and other health care organizations to maximize efficiency and reduce costs.

Reengineering/Restructuring of Hospitals

To achieve these goals, hospitals have embarked upon a variety of reengineering and restructuring efforts, often involving reorganization of patient care services. Many hospitals have expanded the use of unlicensed personnel to perform housekeeping and basic clinical tasks, often under the supervision of RNs (Brannon, 1996; Rosenthal, 1996; Sochalski *et al.*, 1997). Other hospitals have assigned pharmacists, physical therapists, and other ancillary personnel to individual wards (Pew Health Professions Commission, 1995). In consequence, RNs are expected to work closely with a wider range of health care workers as members of interdisciplinary teams.

Advances in biomedical science and technology, combined with reimbursement cuts, have changed the illness levels of patients and the pace of care delivery in hospitals. Many procedures that in the past required hospitalization now are done safely and effectively in outpatient settings. Use of less invasive techniques (e.g., laparoscopy and laser) has reduced the length of hospitalization for other procedures. Some conditions that were previously treated by surgery are now managed through drug therapy.

Lower reimbursement rates drive hospitals and physicians to maximize use of these advances in order to minimize the length of time that patients are hospitalized. Patients who would have been on a medical-surgical ward a decade ago are now recuperating in

long-term care facilities or at home. Others are treated strictly on an outpatient basis. Hospital discharges, days of patient care, and average length of stay plummeted for most of the decade and utilization remains well below the level experienced during the 1980s (Spetz, 2000). As a consequence, hospital patients are “sicker” (i.e., more acutely ill) on average than they were a decade ago (Wunderlich *et al.*, 1996). They require closer monitoring and more assistance from RNs. Hospitals generally have maintained the same RN to patient ratio in the last few years, instead of increasing RN staffing to reflect the more complex needs of more acutely ill patients (Spetz, forthcoming). In the absence of increased RN staffing, heightened demand for clinical care reduces the amount of time RNs have to provide emotional support and education to patients and their families. Shorter lengths of stay in the hospital also cause RNs who work for home health agencies or long-term care facilities to care for patients with more extensive needs (Wunderlich *et al.*, 1996).

RNS’ PERSPECTIVES ON THEIR WORK ENVIRONMENT

The large number of recent nursing strikes in California might suggest that most RNs are extremely dissatisfied with their work. This appears at odds with the findings of the 1997 California Board of Registered Nursing (BRN) survey, which suggest that most RNs are satisfied with their jobs (Barnes & Sutherland, 1999; described in Chapter 2). Discussions with RNs in staff positions reveal a more complex reality. Most are proud to be RNs. However, many also are frustrated by various aspects of their jobs.

The following discussion of RNs’ perspectives is drawn largely from a series of focus groups held with RNs working in four communities across California (Fresno, Los Angeles Basin, Redding, and South San Francisco Bay Area). The participants were staff RNs who provided direct patient care in a wide range of settings. Approximately 60% were employed in hospitals and 40% in various non-hospital settings such as home health agencies, long-term care facilities, and outpatient clinics. (See Appendix C for a discussion of the methodology used for the focus groups and a summary of findings.)

Overall Satisfaction with Nursing as a Profession

Most of the focus group participants were satisfied with their choice of profession. The ability to make a difference in the lives of patients and their families was cited as the most frequent source of satisfaction. Many participants had worked in a variety of nursing jobs and appreciated the range of job opportunities. Some had completed advanced education in nursing to move from one type of nursing job to another. Others cited the challenge of learning to use new diagnostic technologies and administer new therapies. Generally, participants working in non-hospital settings were more satisfied than those working in hospitals.

Despite their general satisfaction with the nursing profession, most participants expressed frustration with various aspects of their work environment. Their concerns were consistent with those of respondents to the BRN's survey (Barnes & Sutherland, 1999).

Staffing

Focus group participants expressed more concern about RN staffing than any other topic; concern was pervasive among participants from all four communities, among both unionized and nonunionized RNs, and among RNs employed by both for-profit and not-for-profit organizations. Their concerns were consistent with findings from other studies. For example, among RNs responding to a survey conducted by the Kaiser Family Foundation (1999), 69% expressed concern about inadequate staffing levels. Focus group participants were concerned about the effect of low staffing levels on the quality of patient care and RNs' level of stress. Many feared that they might harm patients because they could not spend enough time with any of them to monitor their conditions and medications closely.

For many of the experienced RNs, the stress of low RN staffing levels was compounded by their responsibility to work with new RN graduates and unlicensed assistive personnel. Many felt that new graduates had insufficient clinical training to meet the demands of hospital nursing practice, particularly with regard to the number of patients they were expected to manage at the same time. They reported that higher levels of patient illness left less time for experienced RNs to assist new graduates in learning how

to handle patient care crises. In addition, many participants reported that they did not believe that unlicensed personnel had adequate education to perform patient care tasks safely and to prioritize patient care and non-patient care tasks appropriately.

Specialized Nurse Training

Southwestern College's Perioperative Nurse Training Program

Since the 1970s, nursing education has been eliminating clinical education in perioperative care. This has led to a shortage of RNs trained in perioperative nursing. Marlies Vandenberg, the director of the San Diego/Imperial Regional Health Occupations Resource Center (RHORC), reports that the problem was so bad in San Diego that some hospitals were cutting back the number of elective surgeries they were performing because of the shortage of operating room nurses. Vandenberg, in collaboration with industry partners from Kaiser Permanente and Veteran's Administration Hospital of San Diego, developed the Perioperative Nurse Training Program. A consortium of perioperative nursing centers identified three needs for the centers: circulating, specialized perioperative, and recovery room RNs. The curriculum for the program was developed by RHORC with input from community college faculty and perioperative nursing

(continued on next page)

RNs' concerns about staffing levels are difficult to evaluate. Statewide data indicate that the aggregate number of hours worked by RNs in hospitals did not decrease during the 1990s (Spetz, 1998; Spetz, 2000). Nor did the use of unlicensed personnel increase as dramatically as some critics claim (Spetz, 2000). Moreover, although some studies have found a strong association between RN staffing and patient outcomes, there are as yet no widely accepted benchmarks by which the adequacy of RN staffing in California hospitals can be assessed (Spetz, forthcoming). Some of the stress experienced by RNs may be generated by other changes in health care delivery, such as the rise in the illness level of hospital patients, the reengineering/restructuring of patient services, and the introduction of new technologies, rather than by reductions in staffing levels.

The debate over RN staffing has polarized hospitals and unions representing RNs. Approximately one-third of California RNs working in hospitals belong to unions, with the highest rate of unionization in the San Francisco Bay

Area (Seago & Ash, 2000). Over the years, the unions introduced various bills and ballot initiatives to mandate minimum RN staffing levels, culminating in the enactment of Assembly Bill 394 in 1999. This legislation directs the California Department of Health Services (DHS) to institute minimum nurse staffing ratios for acute care hospitals by January 2002. Hospitals vigorously opposed the bill and the two sides remain far apart, as evidenced by recent proposals to DHS that call for widely differing minimum staffing levels (Spetz, forthcoming).

Wages/Benefits

Focus group participants also expressed dissatisfaction with their wages and benefits, echoing the sentiments of many RNs across California (California Nurses Association, 2000; Cleeland & Bernstein, 2000; Fisher, 2000; Kucher, 2000; Rose, 2000; Workman, 2000; Zoellner, 2000). Dissatisfaction with wages stems from the confluence of several trends. During the 1990s, wages earned by RNs working in California hospitals did not keep pace with inflation. Average inflation-adjusted wages for medical-surgical RNs in hospitals fell from a high of \$26.09 in 1994 to \$24.32 in 1998 (Spetz, 2000). In many parts of California, the stagnation of RN wages coincided with robust growth in most other economic sectors, particularly in the high-tech industry. This economic boom has led to a rapid escalation in housing costs that is eroding the standard of living of many middle-class Californians, particularly those living in the San Francisco Bay Area; eight of the ten least affordable metropolitan areas in the U.S. are in California (National Association of Home Builders, 2000). There are some signs that hospitals are responding to RNs' concerns about wages. Over the past year, unions representing RNs have negotiated wage increases and other concessions from a number of hospitals (California Nurses Association, 2000; Cleeland & Bernstein, 2000; Fisher, 2000; Kucher, 2000; Rose, 2000; Workman, 2000; Zoellner, 2000).

Focus group participants were skeptical of hospitals' attempts to use signing bonuses to improve recruitment and retention of RNs. They saw signing bonuses as quick fixes that added to RNs' dissatisfaction. They reported that signing bonuses exacerbated the difficulties of experienced RNs who chose not to change jobs because these RNs were

BEST PRACTICES *(continued)*

directors. Southwestern Community College in San Diego County now offers perioperative nurse training as a certificate program for registered nurses.

The program is two semesters and the fees are the same as for all other community college programs — \$11 per unit. Most of the RNs participating in the program are supported by their employers, who pay not only their tuition, but also their salaries while they are enrolled in the program. The program enrolls a smaller number of new nursing graduates. Last year there were 45 graduates of the program.

Participating employers are required to provide new clinical preceptorships for this program. Vandenberg reports that all of the new nursing graduates who completed the program were able to obtain employment in the facility in which they completed their clinical education. In order to increase the program's accessibility, there are plans to include a distance education component.

responsible for orienting new staff to the specific procedures and policies of their hospitals. In their view, providing better salaries and bonuses for experienced RNs would prove to be a better strategy because it would reward RNs for remaining at a single hospital.

Focus on Retention

UC Davis Medical Center

Staff nurses say that most employers make very little effort to retain nurses with experience and seniority, and do little to make nurses feel valued. However, UC Davis Medical Center (UCDMC) is one place thought to be doing things right. In nursing circles, UCDMC is known as a good place to work. It has a reputation for retaining nursing staff, and their medical center's low turnover rates support that assertion.

Carol Robinson, director of nursing at UCDMC, emphasized that it is not any one specific program that makes the difference in retaining RNs, but rather that the medical center has a culture that supports them. When many hospitals responded to budget cuts by reducing RN staff, UCDMC did not, which, according to Robinson, sent a strong message to RNs that they were valued.

UCDMC's salary and benefits package is comparable to neighboring hospitals. The difference is that UCDMC provides incentives for its RNs to become strong leaders and strong clinicians. Programs to show support for RNs and reward nursing excellence include recognition programs such as \$100 incentive awards and \$1,000 – 3,000 performance-based team awards. Eighty of these awards were given out last year.

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Mandatory Overtime

Participants disliked mandatory overtime. Some reported that their supervisors had threatened to report them to the BRN for abandoning patients if they refused to work overtime. Some had difficulty balancing work and family responsibilities because they often were required to work overtime without advance notice.

Mandatory overtime has become a major issue in negotiations between hospitals and labor unions (California Nurses Association, 2000; Workman, 2000; Zoellner, 2000). In June 2000, the California Industrial Welfare Commission amended Wage Orders 4 and 5 to restrict mandatory overtime for RNs on alternative workweek schedules (e.g., 12-hour days) who are employed by non-governmental health care facilities. These amendments permit mandatory overtime for these RNs only in situations in which a health care emergency has been declared and prohibit employers from requiring RNs to work more than 16 hours per day (Assembly Committee on Labor and Employment). The California Nurses Association sponsored SB 146, which would have extended similar limits on mandatory overtime to RNs who work a regular eight-hour day and to those employed by public facilities. This bill was not approved by the state legislature.

Restrictions on Use of Benefits

Some participants indicated that their employers limited the number of sick days they could take at a time and denied requests for use of accrued vacation time. Some participants reported that restrictions on use of sick leave prompted them to return to work before they had recovered from illnesses. Others suggested that restrictions on vacation leave contributed to burnout because RNs were unable to get away from workplace stressors.

Lack of Appreciation

Many participants also felt that their employers did not value their contributions to patient care. Many reported that their managers did not thank them when they worked beyond their regularly scheduled hours or handled patient care crises successfully. In addition, many felt that they had little opportunity to provide input into organizational decisions that had a major impact on their work. The RNs whose employers sponsored committees and other mechanisms for them to provide input felt that management was unresponsive to their suggestions and concerns. Some participants believed that nursing administrators understood staff RNs' concerns but were powerless to address them. Others expressed frustration that patient care decisions were made by non-nurse managers who had no clinical experience. In addition, some reported they were frustrated by a lack of encouragement and financial support for pursuit of further education in nursing beyond the minimum continuing education credits required to maintain licensure. The participants' comments were consistent with the findings of a national study conducted by the American Organization of Nurse Executives that found that support and respect from management were as important to RNs as receiving competitive wages and benefits (Domrose, 2000).

BEST PRACTICES *(continued)*

Other evidence of the supportive environment is the policy not to use any registry or travel nurses. As Robinson reports, "We would rather use our own nurses who are familiar with our bedside culture, and 'share the wealth' that we would have spent on registry nurses." UCDCMC has an in-house float pool of its own nurses who are trained to work in any unit as needed. This benefits the RNs on staff because they are always working with a team that is familiar and experienced with the medical center.

Additional programs include Bridges to Excellence. This program grants nurses professional leave time to observe and visit a new unit. Its intent is to allow RNs who might want to change units the chance to see the work in that unit firsthand. Staff RNs who wanted a change from the units that they had been working in for many years, but were unsure what unit was right for them, developed the program.

This support of nurses has paid off for UCDCMC. While other hospitals are having trouble filling nursing positions, UCDCMC is not. Robinson knows that she will have to worry about the nursing shortage if other hospitals catch on to UCDCMC's supportive nursing culture, "but I would be happy if that happened, because that would be a great thing for the nursing profession."

Excessive Paperwork

Many participants complained about excessive paperwork. They recognized that some documentation was essential to monitor patients' conditions. However, they felt that the time they had to devote to completing detailed documentation for reimbursement and regulatory purposes could be better spent providing direct care to patients. Many indicated that their employers did not have computerized patient information systems.

RECOMMENDATIONS

The dramatic changes in health care in California during the 1990s have precipitated a stressful work environment for RNs, especially in hospitals. Efforts to expand basic RN education programs and campaigns to promote careers in nursing will be for naught unless the work environment of RNs improves. Today's young adults place a high priority on a balance between work and home life, and a work environment that fosters their professional development (Ernst, 2000). They will not turn to nursing in the numbers needed unless nursing becomes more attractive relative to careers in other fields.

1. Leaders in the health care industry and unions representing RNs should partner with one another to strengthen trust between labor and management.

The battle over minimum nurse staffing ratios and struggles between nurse executives and leaders of unions representing RNs have polarized these groups. These tensions are most pronounced in hospitals. Many staff RNs, including many focus group participants, believe their employers are compromising the quality of patient care for the sake of the bottom line. Many perceive nurse executives as allies of management, not staff. The lack of trust among senior management, nurse administrators, unions, and staff RNs in hospitals has led to bitter public attacks that may reinforce negative images of nursing in the minds of young persons considering career options and the public at large.

Restoring trust between labor and management is critical to increasing interest in nursing careers, as well as to retaining experienced RNs in highly demanding, specialized positions in hospitals. This will require strong leadership at the highest levels in labor and

management and in every health care organization and bargaining unit. Leaders should promote creative partnerships to address the specific concerns of RNs working in these facilities. These partnerships should foster the free and open exchange of information and should focus on future opportunities.

2. Senior health care executives need to constantly evaluate their organizations, engage RNs in these efforts, and take seriously their assessment of current practices and suggestions for addressing the problems.

The rapid pace of change in biomedical technology and constraints on reimbursement for health care services heighten the challenges of health care management. Senior health care executives must constantly evaluate their organizations to assess whether services are being provided as efficiently as possible. Such evaluations must go beyond the common practice of obtaining prepackaged advice from consulting firms. Senior executives need to design and implement continuous quality improvement processes in which the input of RNs and all other employees is incorporated. RNs spend more time with patients than almost any other health professional and know firsthand how care is delivered. Moreover, the success or failure of any change in care delivery hinges in large part on its implementation by RNs, because they are the largest workforce in hospitals and most other health care organizations. RNs are more receptive to changes if they have a voice in determining what changes are to be made and how they will be implemented. Many health care organizations already have in place structures such as unit meetings, committees, and sessions with senior management for RNs to provide input on major organizational decisions. Where these structures fall short is in incorporating RNs' input into decision-making and in engaging RNs in honest dialogue when financial circumstances preclude implementing their preferred solutions.

3. Health care organizations should invest in the retention of RNs.

Hospitals' responses to recent difficulties in recruitment and retention of RNs suggest a striking similarity to their behavior during previous RN shortages. Once again, many hospital executives are relying on signing and referral bonuses, mandatory overtime, and

other quick fixes (Kelley, 1998; Kucher, 2000; Sussman, 2000). These approaches are an understandable response to a tight labor market. However, they are ultimately counterproductive. Although signing bonuses can be an effective recruitment tool to fill vacancies, they also exacerbate the difficulties hospitals face in retaining experienced RNs by providing financial incentives for these RNs to change jobs.

Requiring RNs to work when they are exhausted or sick increases the risk of errors in patient care and iatrogenic illnesses. The Institute of Medicine's 1999 report on medical errors and a recent series of articles in the *Chicago Tribune* emphasize the tragic consequences that RNs' errors may have for patients (Berens, 2000; Kohn, *et al.*, 2000). Mandatory overtime also diminishes the attractiveness of nursing relative to other professions (AB 655, 2000). Professionals in some other industries work long hours, but their earnings are frequently higher than RNs and they often have greater flexibility in scheduling their work hours.

Instead of relying on quick fixes, health care organizations need to invest their resources in long-term strategies for retaining RNs. Health care executives who are successful in recruiting and retaining RNs foster an organizational culture in which managers value RNs' contributions to the organization. They also promote the professional development of their RN staff. They concentrate on retaining the RNs they have, allowing their reputation to function as their primary recruitment tool.

This approach may be more costly with respect to outlays for RN compensation and benefits. However, these costs would be offset by the reduction in costs associated with recruitment, turnover, and use of temporary personnel and by improvement in employee morale. Specific elements of a comprehensive retention strategy should include the elimination of mandatory overtime and the provision of greater financial rewards for experienced RNs, financial incentives for RNs to complete further education, and adequate sick leave.

For an example of a medical center that has created a culture supportive of their RNs, see the sidebar highlighting the UC Davis Medical Center on page 34.

4. Unions representing RNs should place greater emphasis on career security and shared governance.

The changing nature of the health care industry and workers' expectations calls for rethinking the unions' traditional focus on preserving jobs. Health care costs are on the rise and pressures to contain them will mount if California experiences an economic downturn. The rapid pace of innovation in biomedical technology will require all health care workers to acquire new knowledge and skills. Today's workers are not only interested in good salaries and safe working conditions; they also want to participate in the management of the organizations in which they work.

These trends suggest that unions representing RNs in California might wish to shift their focus toward promoting career development and shared governance. One possible model is the work of Local 1199 of the Service Employees International Union, which represents RNs and other hospital workers in New York. Local 1199 has won a seat for workers at the management table and secured significant investment of hospital and government resources in retraining programs for its members (Center for Health Workforce Studies & New Century Concepts, LLC, 1997). California unions also should consider partnering with management to conduct research on the relationship between staffing configurations and patient outcomes, and to apply research findings to practice.

5. Health care organizations should invest in state-of-the-art information systems for patient monitoring and record keeping.

Hospitals and other health care organizations have adopted advances in diagnostic and therapeutic technologies at a dizzying pace. However, they have been slow to adopt advances in information systems technology. Many still rely on paper charts and files that in other industries have long since been replaced by electronic record keeping systems. For RNs, outmoded information systems compound the challenge of complying with the documentation demands of insurers and regulators. They also increase the risk of adverse patient events because practitioners often have difficulty locating pertinent information and because there are fewer checks on the accuracy of data entry than in electronic systems. In addition, some electronic information systems are not user-friendly.

For the sake of both patients and RN staff, health care organizations need to invest in state-of-the-art information systems for patient monitoring and record keeping. Health care organizations also need to invest in training to ensure that staff understand why electronic information systems have been implemented and how they are used.

6. The health care industry and unions representing RNs should create partnerships with nursing education programs to provide new graduates with better preparation for clinical practice.

One of the few things on which nurse executives and experienced staff RNs agree is that new RN graduates are not prepared for practice. Nurse educators report difficulty securing adequate numbers and appropriate mixes of clinical sites to prepare students for practice in hospital and non-hospital settings. This development is, at least in part, a result of changes in RN education. Before the 1960s, most RNs were educated in hospital-based diploma programs that provided rich clinical experiences. The movement of RN education to college and university settings has benefited nursing by facilitating a more rigorous and well-rounded didactic curriculum. On the downside, this movement reduced the incentive for hospitals to provide clinical education to nursing students. In prior decades, gaps in clinical experience could be addressed during the RN's first year on the job. Higher rates of reimbursement permitted lower productivity associated with hiring new graduates, and lower levels of patient illness gave experienced RNs more time to mentor new graduates.

A more proactive approach is needed in today's fast-paced environment. Ensuring adequate clinical education is critical to patient safety as well as RN satisfaction. Hospitals and other health care organizations must create partnerships with nursing schools to ensure that nursing students receive a strong clinical education (AB 655, 2000). They also need to work together to improve the orientation of new graduates. Nursing schools alone cannot fully prepare new graduates for practice; they will always need orientation to the specific protocols and procedures of the health care facilities in which they work. A range of approaches should be explored, including designated mentor programs, extended orientation/preceptor programs, and formal residency programs.

Health care organizations should utilize highly skilled, experienced RNs as preceptors for nursing students and new graduates. Management should structure precepting so that experienced RNs see it as an opportunity for professional development and not as an added burden. This means providing financial incentives for experienced RNs to serve as preceptors, reducing their patient loads to give them adequate time for precepting, and teaching preceptors about effective clinical education strategies. Some health care organizations are already implementing such programs and anecdotal reports suggest that they have been highly successful in improving retention of new graduates as well as the morale of experienced RNs.

4 REGISTERED NURSE EDUCATION *in* CALIFORNIA

Projected RN Deficit in California

A number of national- and state-focused assessments have pointed to the likelihood that there will be a substantial shortfall of nurses in the next decade (Buerhaus, 1999; Buerhaus & Staiger, 1997; Buerhaus *et al.*, 2000; Tabone, 1999; Zalon, 1994). Based on Employment Development Department (EDD) projected requirements, Sechrist *et al.* (1999) estimated a deficit of 26,068 RNs with active licenses between 1996 and 2006 (2,600 per year). Coffman and Spetz (1999), using data from the Department of Finance, estimated a deficit of 3,600 new graduates per year between 2000 and 2010 and 5,000 more per year between 2010 and 2020.

Since half of the RNs now employed in California come from educational programs outside the state, we might assume optimistically that half of the projected RN deficit would be filled by RNs educated outside California. Even if this were so, California schools still would have to increase their production of RN graduates by 26%, using the Sechrist model, and 37%, using the Coffman and Spetz model. Moreover, migration of RNs from other states may decline because the rising cost of living in California may make relocation less attractive. California will need to provide a substantial number of the nurses needed in the state during the coming years. Therefore, the California nursing educational systems must be evaluated and changed as necessary to meet this demand. This chapter discusses several strategies for making changes.

Addressing the Projected Deficit through Educational Changes

In California, 94 educational institutions offer 98 programs that prepare students at the prelicensure RN level: 71 community colleges offer associate degree programs and 14 state and 9 private colleges and universities offer baccalaureates and a few generic master's programs. The RN prelicensure programs are independent of each other. They have different prerequisites, graduation requirements, and curricula, and inadequate mechanisms

for students to transfer among programs or transition to baccalaureate from associate degree programs.

Over the last six years, the number of students in the programs decreased. This was due partially to a reduction of approximately 525 entry slots per year for the six years prior to 1999 (Sechrist *et al.*, 1999). Further reducing the number of students, these fewer entry slots were not filled to capacity; while some programs turned away qualified applicants after filling their entry slots, others did not have enough qualified applicants from which to choose. In 1996 – 97, although only 96.3% of the programs' available entry slots were filled, 658 qualified vocational nursing students, 3,246 qualified associate degree nursing students, and 989 qualified generic baccalaureate students were turned away (Coffman & Spetz, 1999; Sechrist *et al.*, 1999). In 1997 – 98, only 96.9% of the programs' available entry slots were filled. In 1998 – 99, of the 13,557 applicants to all the RN prelicensure programs in California, 5,750 were accepted, to fill 94.7% of the 6,073 available entry slots; the remaining 323 entry slots were not filled (Sechrist *et al.*, 1999).

COMMUNITY COLLEGE RN PRELICENSURE PROGRAMS

The community colleges function and are governed, in many ways, like extensions of high school. Control and administration are carried out through the local community college districts. While there are advantages to such an arrangement, each program's autonomy adds to the confusion that characterizes RN prelicensure programs. The most important issues facing community college RN prelicensure programs that have an impact on the RN workforce include the following.

Lack of a Standard Core Curriculum

Although community colleges typically refer to their nursing programs as two-year programs, it is virtually impossible for a student to graduate in less than three years, and it often takes four years or longer. A thorough review of current college and university catalogs and curriculum plans indicated that the number of required units cannot be completed in two years of full-time study; course sequencing often slows students' progress. What the "two years" usually refers to is the time it takes to complete the actual nursing courses.

Some baccalaureate programs take five to six years to complete, though it is possible to finish others in four years.

The National League for Nursing (NLN) offers an accreditation process that includes a mechanism that sets standards and limits the number of nursing units required to graduate. Most California community college nursing programs do not request accreditation by either the NLN or other nursing accrediting bodies. Thus, the number of credits need-

ed to graduate varies among community college nursing programs. Three reports by Hanson (1988a; 1988b; 1988c) of ADN and BSN curricula, the most recent available, stated that the number of required units ranged from 62 – 115 for an ADN and 120 – 144 for a BSN. Potential students are generally unaware of these differences; some undoubtedly would choose a BSN program if they understood that it would take them as long to graduate from some ADN programs as it would take to receive a BSN.

Inadequate Faculty Resources

In both community colleges and baccalaureate nursing programs, there is a shortage of qualified faculty (AB 655, 1999). In the early days of nursing, physicians taught all classes. To come out from under the shadow of medicine/physicians, nurse leaders in the last two decades attempted to employ only nurses as nursing school faculty. Thus, they are reluctant to reintroduce non-nurse faculty of any kind. It might be worthwhile and even necessary to reevaluate that position. Using non-nurse faculty in selected areas might be a way to increase the limited faculty resource.

Industry-Educational Cooperation/ Career Mobility

Nursing Paradigm 2000

Inspired by mutual frustration over the lack of funding for nursing education, Community Medical Centers in Fresno and Fresno City College developed Nursing Paradigm 2000. Additional partners include Madera Community Hospital, Saint Agnes Medical Center, and Valley Children's Hospital. The program exemplifies the cooperation necessary to increase the number of nursing students.

Staff members at Community Medical Centers who wanted to become RNs were frustrated by the long waits for admittance to the nursing program at Fresno City College, which sometimes lasted two to three years. There are many more qualified applicants than entry slots for nursing students at the college; as a result, all qualified applicants are put into a lottery to determine who is admitted to the program. There is no guarantee as to when a potential student will be admitted to the program. Coincidentally, Community Medical Centers was having trouble filling RN positions.

Nursing Paradigm 2000 enables qualified staff at the participating hospitals to by-pass the lottery system of admission to Fresno City

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Lack of Standard Prerequisites

Another faculty concern relates to required prerequisites for the nursing programs. Community colleges, like universities, determine prerequisites in part by the politics of the institution. If, for example, a science course is a prerequisite in the nursing program, there is a guaranteed enrollment in that course and, therefore, a guaranteed job for a science professor; if the science course is dropped as a prerequisite, the science department may be compelled to reduce their faculty. Thus, in some institutions, nursing programs are pressured to require other departments' courses.

Inadequate Applicant Selection Method

In community colleges, there is no consistent way for qualified applicants who have been turned away due to space limitations to be admitted the next year. A number of community colleges use a lottery system, rather than a waitlist, to admit qualified students. Both the lottery and the waitlist include previous years' qualified applicants who were denied admission due to space limitations. However, a waitlist grants these students first priority of acceptance the next year. A lottery system grants no such priority; therefore, qualified students might wait for years to enter a nursing program or might never be admitted because they are not drawn in the lottery.

In many community colleges, the designation "qualified applicant" is based on minimal standards. Thus, students are admitted who may be less likely to succeed. Leovy (1999) and Comins (2000a) report attrition rates as high as 50%, which are attributed mostly to the admittance of minimally qualified students. Some community colleges are trying to address the attrition issue and have instituted an optional assessment test. Students who demonstrate weakness

BEST PRACTICES *(continued)*

College's RN program. In exchange for admittance to the program, the student agrees to continue to work at their participating employer's hospital for 18 months to two years after graduation. The hospital partners in Nursing Paradigm 2000 pay for the theory courses at Fresno City College and provide the clinical instructors at the hospitals. With the additional financial support for theory courses and additional clinical placements, Fresno City College is able to graduate an additional 20 to 24 nurses each spring.

Less job orientation is required for these graduates because they receive their clinical education at their worksite. In addition, the Human Resources Department at Community Medical Centers has seen an increase in inquiries by CNAs and LVNs for employment because they have heard about the educational opportunities available there. Pillar De La Cruz, the vice president of educational development and human resources at Community Medical Centers, notes that retention also seems to have improved with this program: "With the increased educational opportunities that we've started offering, we have found the staff to be more loyal."

in math or English are referred to campus resources for remedial education (Roberson, 2000). Other colleges have developed pre-nursing courses to give perspective students tutoring opportunities (Comins, 2000b). However, there are too few entry slots and some of these scarce educational resources are being used ineffectively, because the students are not able to succeed or are inadequately supported once admitted.

Inadequate Information for Prospective Students

Because it is difficult for students to compare program characteristics, there is little incentive for RN prelicensure programs to improve. Prospective nursing students do not have access to standardized information about the performance of individual programs. Although the BRN annually collects data about each program, the information is made available to the public only in reports of aggregate data, which mask the individual programs. Other public access of the data is not provided by the BRN. Even with substantial investigation, potential students cannot gather the data to evaluate which program has the best RN licensure-passing rate, how many units of prerequisite and core courses are required to graduate, or how long, on average, it takes to complete the program.

Public release of standardized information about RN prelicensure programs would help prospective students identify the programs that would provide the best preparation and have features that would best meet their needs. It often is assumed that community college students generally have no choice about which college to attend because they cannot travel or do not have sufficient funds. However, if such information were available, a prospective student might decide that choosing a four-year state university instead of a lottery-admission community college would be less expensive overall, due to the likelihood of lost earnings and time related to delayed entry to and graduation from a community college. Similarly, it might be more cost-efficient for a student to attend a private rather than a state university. At present, potential students have insufficient information about admissions procedures and graduation requirements to make informed choices.

DIRECTING RESOURCES: RN-TO-BSN AND DIFFERENTIATED PRACTICE

For years, the nursing profession has attempted to establish itself as educated and scientific. In the past, many RNs were educated in hospital-based diploma programs, but most of these programs have closed or been converted to associate or bachelor's degree programs. (The last hospital-based diploma program in California closed in the mid 1990s.) The movement of nursing education from hospitals to universities marked the first in a series of steps to define a body of knowledge that was unique to nursing and to define nursing as something other than “assistant to the physician.” Nursing leaders established technical schools of nursing in community colleges in the 1970s as a way to alleviate the nursing shortage by training a “technical” RN to assist the “professional” — baccalaureate — RN. In practice, most nurses have not adopted this technical/professional model. RNs with associate, baccalaureate, and generic master's degrees have identical licenses.

The following discussion highlights several issues related to the different ways registered nurses are trained, including associate degree and baccalaureate degree programs, differentiated practice roles, and RN to BSN programs.

ADN versus BSN

In the last three decades, differences between ADN and BSN graduates who have the same job descriptions have been searched for with limited success. There is a literature related to practice and educational differences, but nothing that relates to differences in patient outcomes based on the initial educational preparation of the RN providing care. Kovner and Schore (1998) supported the notion that there is a general, but often weak, correlation between education and complexity of RN practice. They point out that most models of education and practice do not take into account previous nursing experience or practice level. In a 1988 meta-analysis, Johnson found that BSN RNs were associated with higher scores in communication, problem solving, and professional role. However, these associations decreased when experience was taken into account. No differences were found between BSN and ADN RNs in the areas of leadership and autonomy. There are conflicting results related to critical thinking. Pardue (1987) found no

Industry/Education Partnerships, Distance Education

Sonoma State University Leadership/Case Management Master's in Nursing

Kaiser Permanente and Sonoma State University (SSU) have joined forces to create a master's program in leadership/case management that brings the classroom directly to the workplace. The use of teleconferencing and online coursework enables registered nurses who cannot attend graduate school on a full-time basis to complete a master's degree. In addition, this technology makes the program accessible at 11 Kaiser sites in California, from Sacramento to Orange County.

Unlike a traditional master's in nursing program, the Leadership/Case Management Program is flexible enough that most students are able to continue working 60–100% time. While the teleconferencing sessions are held at Kaiser facilities, the program is open to all RNs, regardless of employer. The last cohort had 45 students from around the state. Tuition for the program is equivalent to the usual fees for a traditional master's degree program at a California State University. Students complete core coursework in their first year and then break into specialty areas (leadership or case management) for the three remaining semesters. Approximately 50% of the coursework is completed through teleconferencing and the remaining 50% is done online. As Dr. Gregory Crow, director of the program, said,

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difference in critical thinking, self-reported perceived difficulty with making decisions, or frequency of making decisions, while Brooks and Shepard (1992) found BSN students scored higher than ADN students on critical thinking skills. Davis-Martin and Skalak (1992) found no difference in patient ratings of care provided by senior students from the two types of programs.

One of the reasons researchers may have had no success in finding differences in practice is that there may be no differences in educational programs. In California, an RN who has graduated from an ADN program with 112 units and a RN who has graduated from a BSN program with 120 units would be very hard to distinguish in practice. If differences were found, it would be difficult to attribute them to the educational programs.

Differentiated Practice

Substantial energy and resources are being expended within the nursing community on the discussion of differentiated practice models, which specifically define dozens of roles for nurses based on education, experience, skills, and competency (Fitzpatrick *et al.*, 1994; Forsey *et al.*, 1993; Koerner, 1992; Kovner & Schore, 1998; Sechrist *et al.*, 1999). The California Strategic Planning Committee for Nursing (CSPCN) has proposed an extensive framework to develop a competency-based differentiated nurse practice model with multiple levels of nurses in multiple phases of competency (Fox *et al.*, 1999). This model was developed using existing job descriptions and systems in several California acute care hospitals (Fox, 2000). Although not intended to be a laundry list, it is detailed, confusing, and too unwieldy to be used in most operational settings.

In addition, as Costello (1998) reported, talk of differentiated practice seems like a rehash of the ADN versus BSN debate.

To enact the CSPCN model, a nurse executive would have to develop job descriptions for four steps — novice, competent, proficient, expert — for LVN and RN providers, advocates, teachers, and supervisors. Within each of the job descriptions and steps there are various functions numbering from three to 23 that would have to be distinguished by job and step. It would be virtually impossible to implement these numerous jobs, steps, and functions in a meaningful way.

RN to BSN Programs

There are 27 RN to BSN programs (Peterson's, 1998). These programs are helpful to the nursing profession by generally increasing the educational level of nurses, and worthwhile for the individual RN because of the growth that occurs as they participate in the program. However, the programs absorb faculty, clinical sites, and other precious resources that could be used to add prelicensure entry slots. According to a CSPCN survey (1999), 780 persons graduated from RN to BSN programs in California in 1997–98. NLN (1997) reported that nationally there are a total of 2,853 persons enrolled in the programs. These graduates do not add to the overall number of RNs.

There is little research to support the idea that a BSN is preferred in all job roles. Nonetheless, there is a push by some nursing leaders and other professional groups in California for all RNs to have a BSN. Although it sounds like a worthwhile goal, expending health care resources to accomplish it may not be in the best interest of public health. Increasing the overall number of RNs in

BEST PRACTICES *(continued)*

“Without sacrificing outcomes, it is education's responsibility to make education accessible to the working adult who would otherwise be unable to go back to school.”

Diane Reiman, a graduate of the SSU MSN program, explained why she was attracted to the program, “I was attracted to the Sonoma State MSN long distance learning program for a number of reasons. It provided me with the opportunity to continue working full-time at my day-shift position, allowing me to take video-conference classes at night. Classes were held at Kaiser Orange County Medical Center, only 15 miles away from my work site. Previously, I had started an MSN program at a private university with night courses after work. The combination of the 70-mile round-trip drive, cost per unit, and clinical rotations scheduled on weekends forced me to drop out. I appreciated the fact that, at Sonoma, a lot of the work could be done at home on the Internet and program costs were very reasonable. The opportunity to interact with nurses from all over the state via videoconference, chat room, and e-mail tremendously broadened my learning experience.”

There are other RN education programs across California that use teleconferencing and online coursework, such as RN to BSN programs at CSU-Chico and Fullerton. These programs are aimed at increasing access to nursing education at all points of a nursing career.

Nursing Diversity Programs

Samuel Merritt College, Scholars in Service Program

Achieving a nursing workforce that reflects the racial and ethnic diversity of the California population is essential to providing competent care to California's increasingly diverse population. However, comprehensive programs, that address both the social and financial barriers that many minority students face are rare. To address this issue, Samuel Merritt College in Oakland, in partnership with the San Francisco Foundation, implemented in 1996 the Scholars in Service Program (SISP).

SISP provides students with guidance, assistance, and financial support as they pursue a Bachelor of Science in nursing degree. Benefits of the program include preadmission counseling, assistance with the financial aid process, mentoring with professional nurses, a renewable scholarship, and a monthly newsletter. The program's coordinator plays an important role in helping the students adjust to the rigors of the program, serving as an academic advisor and personal advocate.

California would appear to better address the health care needs of the public in the next decade. This may mean redirecting resources, at least temporarily, away from RN to BSN or differentiated practice programs and into prelicensure programs.

DIVERSITY IN THE NURSING WORKFORCE

Race/Ethnicity

Minorities are, largely, an untapped resource that could help expand the RN workforce. The racial/ethnic composition of California's RN workforce is not at parity with the population. Seventy-nine percent of California RNs are white, compared to only 50% in the overall state population (NSSRN, 1996; California Department of Finance, 1998). However, significant gains have been made in recent years: the race/ethnicity of recent RN graduates is closer to that of the population. Despite these gains, certain racial/ethnic groups remain underrepresented in nursing. In 1998, 31% of Californians were Latino, yet they represented only 13% of persons receiving basic nursing degrees (California Department of Finance, 1998; California Postsecondary Education Commission, 1999).

The underrepresentation of certain racial/ethnic groups in nursing is due in part to the disparity in educational attainment across racial and ethnic groups. African Americans,

Latinos, and Native Americans are less likely to complete a college preparatory curriculum and are more likely to drop out of high school than whites and Asian/Pacific Islanders (California Department of Education, 2000). Other factors may include the perception of nursing as a low-status career, a lack of role models in nursing, and a lack of support from family members, high school counselors, and nursing faculty (National Association of Hispanic Nurses, 1998).

The revision of California community college nursing education program admission requirements to allow all minimally qualified students an equal chance at admission led to a dramatic increase in attrition rates, especially among minority students (Leovy, 1999). Factors may have included those mentioned above, especially the lack of support and the lack of faculty mentors of their own race or ethnicity.

Gender

Men also are an untapped resource that could help expand the RN workforce. Although the number of male RNs has increased in recent years, nursing remains an overwhelmingly female profession. During 1998 – 99, 16% of nursing students in California were male compared to 6% of the overall RN workforce (BRN, 2000). Staff RNs who participated in focus groups conducted for this project suggested that the profession might benefit from a larger percentage of men because male RNs might be more assertive in communicating with management about problems with staffing and working conditions.

Age and Family Status

The average age of a new nursing graduate in California is 33 years (NSSRN, 1996). In the U.S., newly licensed nurses are more likely to have children than in the past (Loudon *et al.*, 1996). These older nursing students have different needs and expectations than traditional students who may go directly to nursing school from high school. Those with families may have less time to devote to their nursing education, and often must continue to work while attending school in order to support their family and finance their education. Older students need RN education programs that offer streamlined curricular requirements, online learning, evening or weekend classes, or credit for relevant prior work experience.

BEST PRACTICES *(continued)*

Since implementation of SISP in 1996, the number of underrepresented students of color at Samuel Merritt College has increased from 10% to 18% of the school's undergraduate population. The retention rates for African Americans and Hispanic/Latino students also have increased significantly, from 29% and 63% to 82.3% and 87.5%, respectively.

Samuel Merritt's commitment to improving the retention of minority students is evidenced by SISP Coordinator Florence Spinks' comment: "The SISP assists the student in becoming part of the college community by offering academic assistance and peer mentoring, in addition to preadmission counseling." The real test of the program is what the students think. Matasebya Smith, a current student, said of the program, "The program promotes diversity and provides an opportunity for community service and lots of clinical experience."

RECOMMENDATIONS

Based on a literature review, data collected, and expert advice, we make the following recommendations.

1. Increase RN prelicensure entry slots.

Provide funding to establish new RN education programs and expand existing programs:

- Target funding to programs that produce the most RNs in the shortest time, with the best NCLEX pass rates; this recommendation is consistent with recommendations issued by the AB 655 task force and CSPCN (Sechrist *et al.*, 1999).
- Consider temporarily redirecting all state resources to RN prelicensure programs that demonstrate the ability to train the most RNs with the best NCLEX pass rates.
- Consider temporarily suspending or diverting any funding from RN to BSN programs or, at least, consider not providing any new funding until the nursing shortage is substantially reduced.
- Work aggressively with the private sector to increase funding for basic RN education with such mechanisms as endowed chairs in nursing education, endowed nursing mentorship programs, and public-private partnerships.

2. Collect and make easily available to the public comprehensive RN education program data.

Nursing education programs should provide the BRN with comprehensive data, including average length of time to complete program, average length of time to begin nursing classes, and percent of graduates who successfully pass the licensing examination on the first attempt. This data should be issued by the BRN as public report cards to:

- Assist prospective nursing students in selecting programs.
- Help the state legislature and state agencies decide which nursing education programs to fund.
- Provide performance incentives for educating RNs well and efficiently.

3. Redefine nursing faculty to include non-nurses in selected areas.

4. Make nursing programs more accessible to prelicensure students and to RNs who choose to further their education.

- Streamline RN to BSN curricula.
- Expand evening and weekend courses.
- Expand the use of distance learning technology.

For an example of a master's program taught via teleconferencing and the Internet, see the sidebar highlighting the Sonoma State University Leadership/Case Management Master's in Nursing on page 50.

5. Increase diversity (race/ethnicity and gender) of nursing students.

- Nursing schools should partner with parents, community leaders, and K – 12 schools to increase the math and science preparation of underrepresented minority students to prepare them to enter college and complete the requirements for a nursing degree. Such efforts are essential to ensure that all persons who are interested in nursing careers have the knowledge and skills to complete nursing degrees. These outreach and support programs should combine academic preparation along with exposure to career opportunities in nursing. In communities in which high schools do not offer a full range of college preparatory courses, nursing schools might partner with other departments to provide students with access to such courses. In addition, nursing schools should explore opportunities for partnerships with the Mathematics, Engineering, and Science Achievement Program and other organizations with expertise in preparing minority and disadvantaged K – 12 students for math- and science-based careers, as has been recommended by the AB 655 task force (AB 655, 1999).
- Nursing schools should provide comprehensive enrichment and support services for minority nursing students, including academic enrichment programs, such as academic advising, tutoring, and test preparation help; and support services, such as orientation programs, peer support groups, and mentoring. For an example of

such a program, see the sidebar highlighting Samuel Merritt College's Scholars in Service Program on page 50.

- Nursing schools and organizations should implement public relations campaigns targeted toward racial/ethnic minorities and men to reverse the long-standing stereotype that nursing is a profession for white women exclusively and to make potential RNs aware of the wide range of career opportunities available. The campaigns, however, will only be successful if nursing leaders first address some of the other challenges facing the work environment today that may be deterring students, as addressed in other chapters of this report. If the public sees nursing work as a fraught with employee dissatisfaction and difficult work conditions, as highlighted in the media coverage of recent nursing strikes, image campaigns may be fruitless. Campaigns that honestly acknowledge the challenges of the job as well as the rewards will be more likely to be taken seriously by students considering their career paths. To capture both the challenges and vast rewards of a nursing career, a nursing campaign might embrace an idea similar to the memorable Peace Corps motto "The toughest job you'll ever love."

For an example of an effort to implement such an informational campaign, see the sidebar highlighting the Coalition for Nursing Careers in California on page 23.

6. Expand alternative pathways for RN education.

- Maximize the number of persons pursuing a nursing education by investing in programs that provide alternate RN education pathways, such as master's entry programs (both master's and generic master's entry for persons with degrees in other fields) and LVN to RN programs.

For an example of an alternate education pathway, see the sidebar highlighting the UCSF Master's Entry Program in Nursing on page 57. For an example of a partnership between a college RN prelicensure program and several medical centers and hospitals, see the sidebar highlighting Nursing Paradigm 2000 on page 44.

5 THE FUTURE *of* REGISTERED NURSING IN CALIFORNIA

The crisis in the nursing workforce in California and the United States is as real as it is complex. As pressing as the problems are, there are no short-term solutions that can adequately address these concerns. Health care organizations have already begun a series of actions to confront the challenges as they perceive them. These include an array of focused recruitment actions (Skiles Luke, 2000; Sussman, 2000). Such efforts may displace nurses from one care setting to another or attract a few foreign nurses to the U.S., but recruitment as such will do little to address the more basic trends that have created this complex crisis.

To address the nursing workforce issue in a more fundamental manner will require changing the working environment of nurses, attracting new interest in nursing as a career, and altering the practice and professional structures that shape how nurses are deployed in the health care system. It also will require reforming education programs to serve these changes. Efforts to address these dimensions of the nursing workforce will require time and, in many cases, a reconsideration of fundamental precepts that guide the profession. Questions to be considered include:

- Where and how should nursing education be conducted?
- Who is responsible for such education?
- How should nursing service be organized?
- What leadership skills are required for nursing?
- How should nurses be organized in order to provide professional service?

Two of the most basic considerations are the structure of nursing practice and the model that guides the profession. For most of its existence as a profession, a distinct model of professionalism and an equally particular model of practice have shaped nursing. Both models have created for the nurse and those that interact with the nurse (patients, other health care professionals, and systems of health services) a pattern of expectations that informs, shapes, and limits how nurses are trained, deployed, utilized,

and, ultimately, valued. Over the past thirty years, as health care has become more complex, both the practice model and professional context of nursing have evolved. Moreover, California has enacted the characteristics of both models into legislation (AB 394) that will regulate the staffing ratios of nurses in hospital settings. Other states are considering similar legislation (Spetz & Seago, forthcoming).

Any consideration of present and projected nursing workforce supply must acknowledge that such assessments are heavily predicated on assumptions about the models of practice and professionalism that are advanced by the profession and reflected by the health care system. The tacit assumption is that the models remain constant and that we may build our assessment of over- or under-supply of workforce against this given reality. This approach leads analysts to focus on other variables, such as the size of the population served, production of new workers, age and retirement rates of professionals, competition for workers, ability to pay higher wages, and, in the case of nurses, life expectations of women. Analysts usually avoid the difficult task of estimating the impact of modifying models of practice and professionalism.

Model of Practice

A model of practice implies a framework by which the work of a profession is organized. For the past thirty years, a model of practice generally referred to as primary nursing has dominated nursing practice. This approach to nursing organization placed the RN in the position of directly providing one-to-one patient care services, rather than being the leader of a team responsible for those services. Primary nursing emerged as an alternative to team or functional nursing and was promoted as a means for improving the quality of patient care and enhancing the professional fulfillment of nurses. The primary nursing model was especially pervasive in the hospital setting. It is important to note that the model emerged at a time when health care costs were not a driving issue and hospitals faced relatively little competition for RNs from other types of health care organizations.

Assessment of primary care nursing over the past twenty years reveals mixed results. The model seems to improve the level of patient satisfaction, both increase and

decrease the level of nursing stress, cost more, and provide comparable levels of patient care outcomes (Carlsen & Malley, 1981; Chavigny & Lewis, 1984; Shukla, 1983). Because of its focus on the RN, it has led to less flexibility and a decrease in LVN employment in many settings.

Model of Professionalism

Like a model of practice, a model of professionalism also shapes the ways that nursing care is organized and the relative number of nurses needed to provide the service. Over the past thirty years, three characteristics of the professional nurse have seemed particularly important. First, nursing has remained a profession that is practiced primarily in the large institutional setting of the hospital. While the percent of RNs employed in the inpatient setting has declined, they still represent the majority (60%) of nurses (NSSRN, 1996). These hospital nurses also have remained employees of the system and have not emerged as independent professionals with practices that can be separated from the sponsoring institution.

In considering the workforce needs of the future health care system, it seems essential that the professional model of nursing be thought of as a variable that could be altered to change the number of nurses available or the productivity of those in practice. In response, new forms for the organization of nursing service are likely to emerge. Such efforts should be led by nurses and provide ways to explore new models of professionalism. For example, nurse executives might explore whether an independently organized practice of nurses could provide contract nursing care services to hospitals on a lower cost, higher quality basis. Unions representing RNs might modify work

Alternate Means to Enter the Nursing Field

Master's Entry Program in Nursing (MEPN)

Nontraditional educational programs often are necessary to attract second-career students to nursing. Master's entry programs are one way to attract such students. Several universities in California offer a master's in nursing program for individuals who hold bachelor's degrees in other fields.

Since 1991, the University of California San Francisco (UCSF) has offered the three-year Master's Entry Program in Nursing (MEPN). There are approximately 60 students in each of the current cohorts, and the demand for the program has been growing. Prerequisites are kept to a minimum to make the program accessible to students from a wide range of fields. The first year is an intensive program, which entails four quarters of a generalist nursing education. At the end of that year, students are qualified to take the California Board of Registered Nursing licensure examination. During the next two years, students are integrated into a specialty master's program with other traditional master's students.

Some of MEPN's benefits to the nursing profession come from the program's ability to draw applicants from a much larger pool than traditional master's of nursing students. Since the program draws on the total population holding bachelor's degrees, there is a larger number of minority students to draw on, compared to the number of minority RNs eligible for traditional master's in nursing programs. As a result, each cohort is typically composed of proportionally more minority students than traditional master's in nursing programs, according to Scott Ziehm, the assistant dean and director. The students also bring valuable educational work and life experiences to the nursing profession.

rules, which are based on older industrial sector realities and may compromise efforts to improve the quality of patient care outcomes or even the satisfaction of RNs.

Changing Models of Professionalism — Medicine and Pharmacy

Questions of professional expectations and practice structure obviously play out in other health professions as well. A good example of changing expectations in medicine is the movement to the use of hospital-based physicians (hospitalists) for inpatient medical service. This change calls into question most of the existing expectations of physicians about their relationship to the hospital, patient, and sequencing of care. But preliminary analysis reveals improved patient outcomes, lower costs, and higher levels of patient satisfaction (Bellet & Whitaker, 2000; Craig *et al.*, 1999; Ponitz *et al.*, 2000). This has led to increasing calls for restructuring inpatient physician services along these lines.

This professional change follows the pattern of a similar transformation in pharmacy. In the early 1980s, the leadership of the profession realized that the purely mechanical task of checking and filling prescription orders would, in the long-term, jeopardize the profession's viability. This realization led to a decade-long process in which the profession expanded its definition of its role and scope of practice and changed the level of education for entry to practice. The practice of pharmacy has moved beyond a narrow focus on dispensing medications to encompass a wide range of interventions to promote safe and effective prescribing practices among health professionals and assist patients in taking medications appropriately.

Both movements, to clinical pharmacist and to hospitalists, point to a process of reconsideration as two health professions (or subsets of them) repositioned themselves to add more or different value to the system of care. Both responses required creativity and a willingness to step beyond the traditional boundaries of the professions to disrupt the system and bring to the process a new value equation.

Conclusion — Addressing Necessary Changes in Nursing

In assessing the public's needs for nurses and nursing services, it is important to step outside of the existing arrangements for practice and professional structure to ask fundamental questions as to the best way to organize and deliver these care services.

To return to the questions raised earlier in this chapter, this will mean a significant redefinition of where education takes place and who is responsible for it. The care delivery system must reengage in this process not just with support, but also with a sharpened ability to describe its needs and have them met through educational programs. It also seems likely that significant reworking of the practice model of nursing will be necessary. Many of the values of primary nursing remain important, but they must be reassessed in the context of the new systems of care, new technology, and new expectations of patients and their families.

Nursing as a profession should lead this reassessment, but it will best served if it incorporates and values what is made possible and demanded by these other interests. To do this will require uncommon leadership — not a leadership born out of acting on self-interest, but one that pushes to define the new common ground of health care with other professionals, the system of care, and, ultimately, the public and consumer of services. Not all of this will be seen to serve the immediate interests of nurses or nursing. But by taking on some of the leadership role, nursing will be best positioned for the changes that inevitably will occur in health care in the U.S. If the profession supports such a fundamental reconsideration, then it will lead to an assessment of the basic principles of the profession itself. Are the structures and processes that surround the profession of nursing adequate to the times? Or, is this an opportunity to begin a process of reconsidering such issues as nursing's relationship to the patient, the organization of practice, medicine, and payment for professional service?

* APPENDIX A:
 ROSTER *of* ADVISORY COMMITTEE MEMBERS

Please note that the views expressed in this report are those of the authors. The participation of these individuals as advisors for the project does not imply endorsements of the findings, conclusions or recommendations in this report.

Advisory Committee

Linda Burnes-Bolton, DrPH, RN, FAAN

Vice President and Chief Nursing Officer
 Cedars-Sinai Health System
 Los Angeles, California

Sarah Keating, EdD, RN, FAAN

Chair
 California Strategic Planning Committee
 for Nursing/Colleagues in Caring

Soraya Coley, PhD

Dean
 School of Nursing & Human Services
 CSU-Fullerton

Carmen Portillo, RN, PhD

Associate Professor
 School of Nursing, UC-San Francisco

Jim Comins, RN, MSN

Director
 EdNet Health Initiative
 California Community Colleges

Ruth Ann Terry, RN, MPH

Executive Director
 California Board of Registered Nursing
 (Jean Harlow, RN, MSN attended the first
 meeting on her behalf)

Barbara Hanna, RN, PHN

President and CEO
 Home Health Care Management, Inc.

Marlies Vandenberg, RN, MSN

Director
 San Diego/Imperial/Desert
 Regional Health Occupations
 Resource Center

Deloras Jones, RN, MS

Consultant
 Kaiser Permanente Medical Care Program

* APPENDIX B:
LIST *of* INTERVIEWEES

The authors would like to thank these individuals who were interviewed over the course of the project for their expertise. Their participation does not imply endorsement of the findings, conclusions, or recommendations in this report.

Irene Alexander, Shands Hospital, University of Florida

Janis Bellack, Medical University of South Carolina

Elizabeth Brashers, Kaiser Permanente

Peter Buerhaus, Vanderbilt University

Toni Casal, Coalition for Nursing Careers in California

Gregory Crow, Sonoma State University

Pilar de la Cruz, Community Medical Centers, Fresno, California

Rheba de Tornyay, University of Washington

Mary Foley, American Nurses Association

Maryann Fralic, former vice president of nursing, Johns Hopkins University Hospital

Timothy Gorman, Shands Hospital, University of Florida

Brenda Nevidjon, Duke University Hospital

Diane Reiman, Kaiser Permanente

Rose Rivers, Shands Hospital, University of Florida

Carol Robinson, University of California, Davis Medical Center

Marla Salmon, Emory University

Florence Spinks, Samuel Merritt College

Marlies Vandenberg, Southwestern Community College

Scott Ziehm, University of California San Francisco, School of Nursing

* APPENDIX C:
SUMMARY *of* FINDINGS FROM FOCUS GROUPS WITH
STAFF REGISTERED NURSES

FOCUS GROUP RESEARCH AMONG CALIFORNIA REGISTERED NURSES

Prepared by:

ARTHUR ASSOCIATES

August 10, 2000



Purpose and Objectives

The purpose of this research project was to learn more about California registered nurses' attitudes toward their jobs and careers. Specific objectives of the research were to:

- Identify some of the major problems confronting registered nurses in staff positions, and suggestions for addressing those problems
- Determine any differences in attitudes between registered nurses who work in hospitals and those who work in non-hospital positions, such as home health agencies, long-term care facilities and ambulatory facilities
- Identify differences in attitudes between registered nurses in hospitals in which nurses are represented by unions and those in hospitals without such unions

Methodology

Ten focus groups of California registered nurses were held in four locations, as follows:

- Long Beach — One group of registered nurses in hospitals in which nurses are represented by unions, one group of registered nurses in hospitals without nursing unions and one group of registered nurses in non-hospital settings (June 27; 30 total)
- South San Francisco — One group of registered nurses in hospitals in which nurses are represented by unions, one group of registered nurses in hospitals without nursing unions and one group of registered nurses in non-hospital settings (June 29; 30 total)

- Redding — One group of registered nurses in hospitals and one group of registered nurses in non-hospital settings (July 6; 21 total)
- Fresno — One group of registered nurses in hospitals and one group of registered nurses in non-hospital settings (July 10; 18 total)

A total of 99 registered nurses participated in the ten groups. Respondents were screened to be sure they have worked in nursing for at least two years, that they work at least 20 hours per week for one employer, and that they have direct patient care responsibility but no significant management responsibility. Participants were paid \$125 (South San Francisco) or \$100 (the other three markets) for their participation in the groups, which lasted approximately one and one-half hours each. All groups were moderated by Jennifer Arthur, Principal of Arthur Associates, using the discussion guide which is included in the Appendix.

Note: Because of the qualitative nature of this project and the small sample size, the findings are considered directional rather than conclusive. Additional research should be conducted before drawing final conclusions on the issues addressed in this study.

CONCLUSIONS

1. **Based on input from the focus groups, it appears that registered nurses are relatively content with their career choices.**

Most of the registered nurses in both the hospital-based and the non-hospital nurse focus groups seem to be satisfied with their choice of nursing as a career. Only a handful of individuals in all of the groups indicated that they are considering leaving nursing for another kind of career. When asked if they would recommend nursing to someone considering this field, most said that they would do so, particularly if they were sure that the individual was well-suited to the field. However, respondents indicated that they were more reluctant to recommend nursing as a career today than they might have been in years past, because they feel that it is a more demanding job than it was previously.

Respondents mentioned a number of aspects of nursing that they like and which make their jobs rewarding. In particular, nurses enjoy the opportunity to help their patients get better, the teamwork with other clinical personnel and the challenges of an ever-changing field. Nurses also appreciate the fact that there are opportunities throughout the world for someone with a nursing background.

2. Registered nurses, particularly those in hospitals, have a number of concerns about their jobs and careers.

While they are generally happy to be registered nurses, respondents cited a number of aspects about their jobs that they dislike. In every group, a number of respondents complained about the excessive patient loads and the stresses and challenges associated with having too little time to accomplish the job at hand. Additionally, quite a few respondents mentioned the abundance of paperwork, which adds to nurses' stress levels. Although quite a few participants claimed to like their work schedule, many object to restrictions on their ability to take time off, such as mandatory overtime and limits on vacation scheduling. Salary levels are satisfactory to some, but to others appear to be inadequate for the workload, the stress level and the lifestyle sacrifices they must endure. Several people pointed out that nurse salaries are substantially lower than they might expect in a different industry.

Opinions vary as to why the problems mentioned above are occurring, but few respondents seem to have a clear understanding of the underlying causes. Focus group participants place blame on, among others, such factors as the trend toward healthcare becoming a business, the litigious nature of the American public, the greediness of insurance companies, drug companies and their own parent organizations and the absence of nurses in decision-making forums.

3. Respondents feel relatively powerless to change the things they dislike about their jobs.

Nurses believe that they have little power to effect change in their organizations, unless patient safety is jeopardized. Many respondents say that there are venues for them to express their views and raise concerns, but very rarely is action taken. Furthermore, individuals who complain too often may be labeled troublemakers or ringleaders. Focus group members attribute their lack of power in large measure to the fact that management does not understand nursing, managers are themselves under tremendous pressure to produce results, and nurses do not stick together to present a unified front. Finally, respondents mentioned that many of the problems they encounter in the workplace are due to external forces which cannot successfully be addressed by anyone within their employer organizations.

4. Organized labor unions are perceived by most respondents to improve the working conditions of the hospital registered nurses they represent.

Throughout the focus groups of hospital-based registered nurses, the general view was that organized labor unions do a good job of protecting and supporting the nurses they represent. Nurses who both are and are not personally represented by unions feel that unions help to ensure that registered nurses receive the benefits they deserve and are not unfairly treated by their organizations. It was mentioned that even the threat of a union vote can be enough in some hospitals to cause a positive change in attitude toward nurses. It was also mentioned that unions which represent non-nursing workers as well as registered nurses may not be as good at addressing the specific needs of nurses as is a dedicated nursing union.

5. Registered nurses in non-hospital positions generally seem more satisfied and feel slightly greater power to influence change than those in hospitals.

Although respondents in the non-hospital focus group echoed many of the concerns raised in the hospital groups, generally those in non-hospital settings seem less vehement

in their complaints and more enthusiastic about the rewards of the job. This difference in attitude may be due to a number of factors, as follows:

- There may be greater stresses and pressures inherent in a job as a hospital nurse than there are in other nursing jobs, where the hours may be more regular, the workloads may be more manageable and the nurse's input may be valued more highly.
- The respondents in the non-hospital groups seem to work in smaller organizations (or smaller units of a larger one), where they experience greater independence and where their voice is more easily heard than in a larger, acute care hospital setting.
- The respondents in the non-hospital groups, on average, are somewhat older, more experienced in nursing and more highly educated than their hospital counterparts, so they may be more assertive and may be employed in higher-level positions.
- The respondents in the non-hospital groups have nearly all previously worked in a hospital setting. They have now chosen a different field of nursing, for which they may be very well suited, although some may have taken lower pay or benefits. The hospital nurses, by contrast, may have taken a hospital position without having the opportunity to explore the variety of other nursing jobs open to them.

Interestingly, while most of the registered nurses in the non-hospital groups have previously worked in hospitals, none plans to return to a hospital. By contrast, many of the registered nurses who now work in hospitals are looking forward to taking other, nonhospital positions at some time in the future.

6. Support for registered nurse education and training appears to vary widely from one employer to another.

Respondents described a wide array of attitudes on the part of their employers toward educating and training registered nurses. Some organizations actively encourage registered nurses to keep up their current skills and acquire new ones by reimbursing tuition costs,

paying in full for time spent in education and even covering travel expenses or offering special programs on-site at the employer's expense. These employers often convey to their employees that they support nurses' efforts to advance themselves, particularly if the new skills will also benefit the organization.

However, many registered nurses reported that their employers are not supportive of their personal advancement, reimbursing only mandatory CNE courses and sometimes requiring nurses to use their personal time to attend these courses. Several individuals mentioned that the education allowances for their department are often used by management, leaving nothing for nurse education. Some respondents mentioned that there are programs that they could attend, but it is difficult to get time off to take advantage of them. It does appear that those registered nurses who pursue education and training the most aggressively are those most likely to be awarded whatever benefits are available.

7. Nurses' suggestions for increasing recruitment and retention of registered nurses focus on improving salaries, benefits and work schedules and strengthening nursing educational opportunities.

The most often-mentioned suggestions for attracting more people to nursing and retaining a higher percentage of working nurses were improving salaries and benefits and reducing the workload, with a number of respondents also suggesting ways to enhance the education and training of registered nurses.

Many individuals also recommended that the public be made more aware of the value of registered nurses and the many opportunities for nursing careers, so that more of the right kinds of candidates will be attracted to the profession. Other suggestions included:

- Treating registered nurses with greater respect and gratitude
- Encouraging more men to enter the field, on the assumption that men are more assertive and will demand improved conditions
- Easing the transition from nursing school to nursing jobs through better internships and preceptorships

- Promoting nursing as a career to inner city residents, to school children, to high school students
- Providing benefits such as day care services, free meals, sabbatical leave, bonuses for long tenure

Note that some of these recommendations entail substantial additional cost, while other recommendations could be implemented with minimal or no incremental cost.

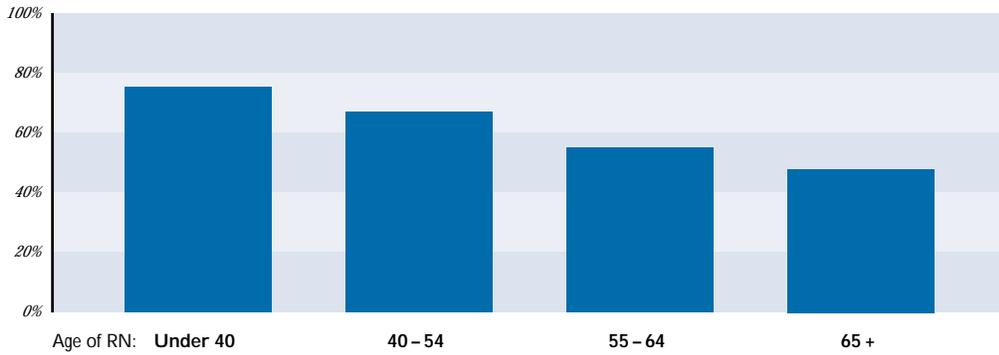
* APPENDIX D:
ADDITIONAL TABLES *and* GRAPHS ON REGISTERED
NURSE WORKFORCE CHARACTERISTICS

METHODS

Most of the data about nurses were calculated from a survey conducted by the California Board of Registered Nursing (BRN) in 1997. The BRN collected information from 8,155 Registered Nurses (RNs) about their education, employment, career plans, family situations, and personal characteristics and provide these data to us for this report. Another source of information about nurses is the National Sample Survey of Registered Nurses (NSSRN), conducted most recently in 1996. The NSSRN has been conducted every four years since 1980, and before that in 1977, enabling one to study changes in nursing over time. In 1996, the NSSRN included information about 29,908 RNs, 1345 of whom lived in California. Because the size of the NSSRN's California sample is smaller than the BRN survey, the BRN survey is more likely to accurately represent the nursing workforce of California.

The NSSRN is not large enough to allow for a valid regional analysis for most variables, but the BRN survey is amenable to some regional study. We divided the state into nine regions, based on metropolitan designations provided by the U.S. Bureau of the Census and on the availability of data for each region. These regions are depicted in Figure 1, and include Los Angeles county, Orange county, San Bernardino and Riverside counties, San Diego and Imperial counties, the San Joaquin Valley, the Central Coast, the San Francisco Bay area, Sacramento, and Northern and Mountain counties. It would be ideal to examine the northern counties of the state separately from the Sierra Nevada counties; however, there are not enough respondents to the BRN survey in each of these regions to disaggregate them.

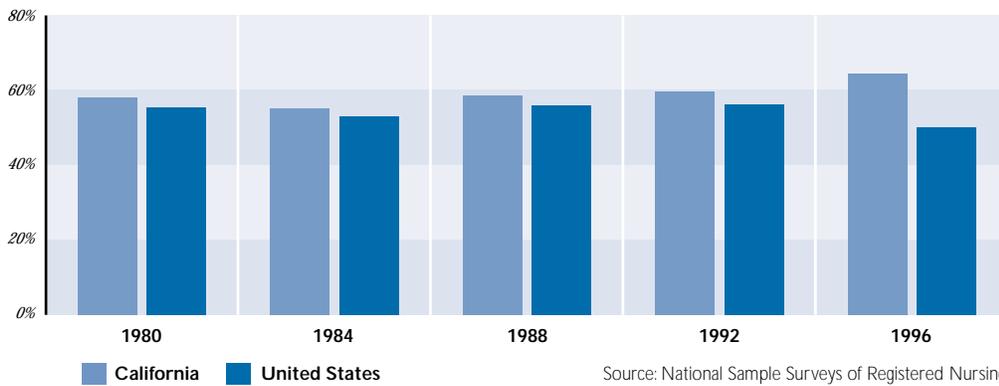
ADDITIONAL DATA AND FIGURES



Source: California Board of Registered Nursing, 1997.

FIGURE A1

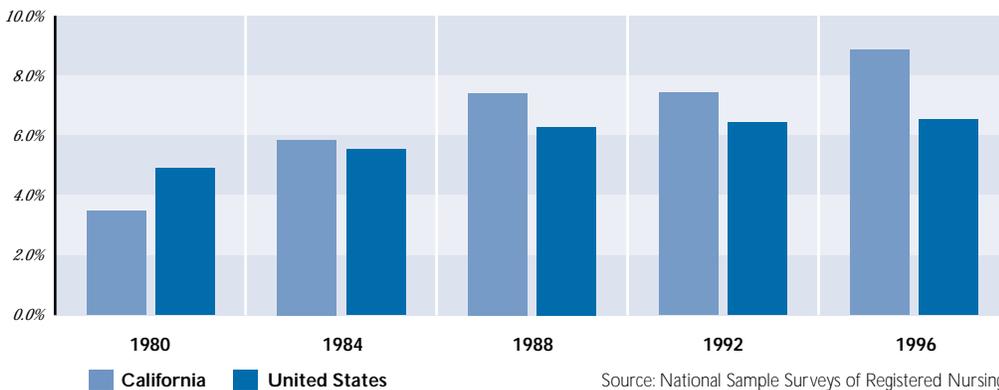
Percent of Employed California RNs Working in Hospitals, by Age



Source: National Sample Surveys of Registered Nursing.

FIGURE A2

Percent of Employed RNs Working in Hospitals, 1980-1996



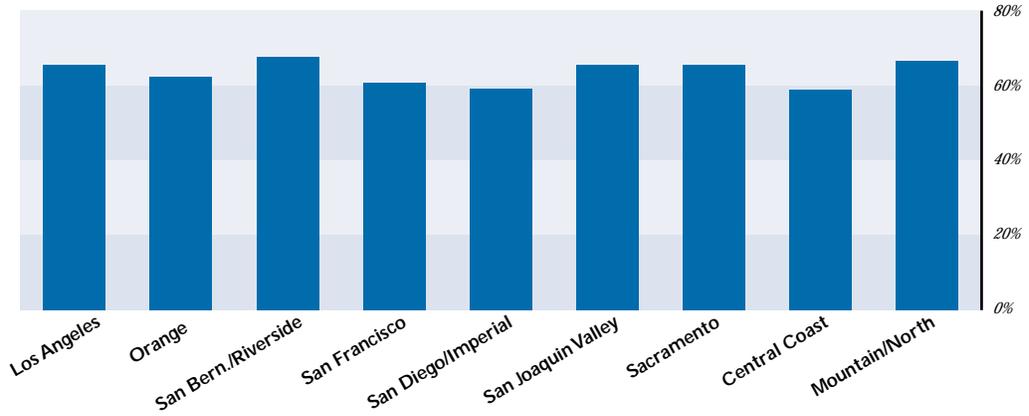
Source: National Sample Surveys of Registered Nursing.

FIGURE A3

Percent of Employed California RNs Working in Ambulatory Care

FIGURE A4

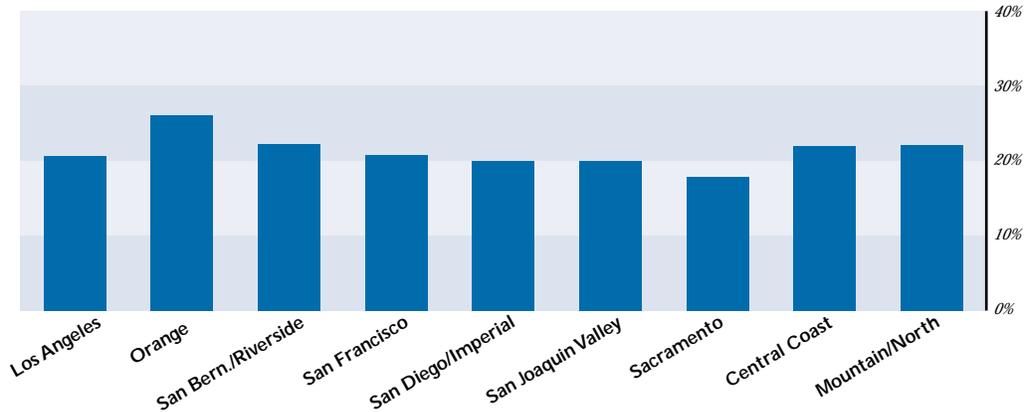
Percent of Employed California RNs With Primary Employment in a Hospital, 1997



Source: California Board of Registered Nursing, 1997.

FIGURE A5

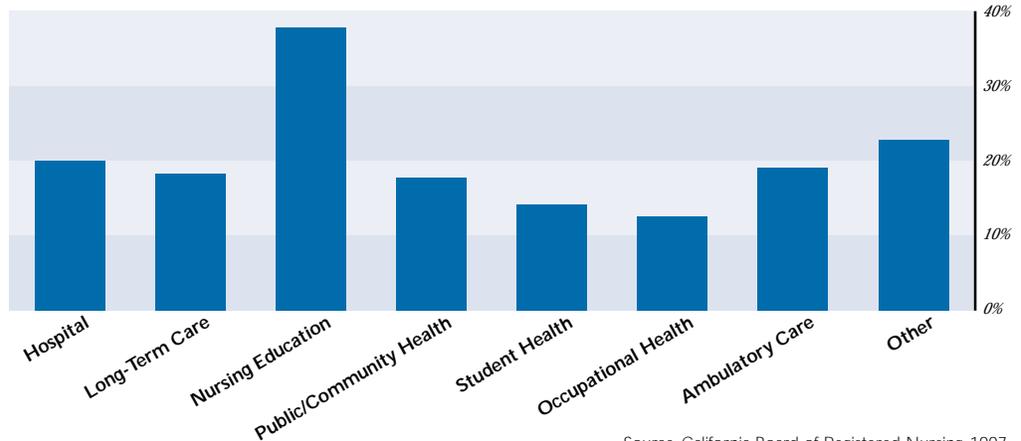
Percent of Employed RNs in California with Multiple Jobs



Source: California Board of Registered Nursing, 1997.

FIGURE A6

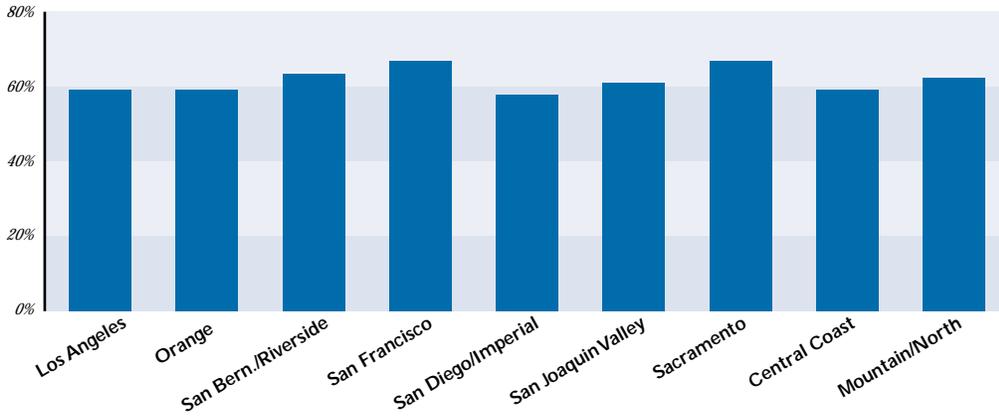
Percent of Employed California RNs Holding Multiple Jobs, by Setting of Primary Job



Source: California Board of Registered Nursing, 1997.

FIGURE A7

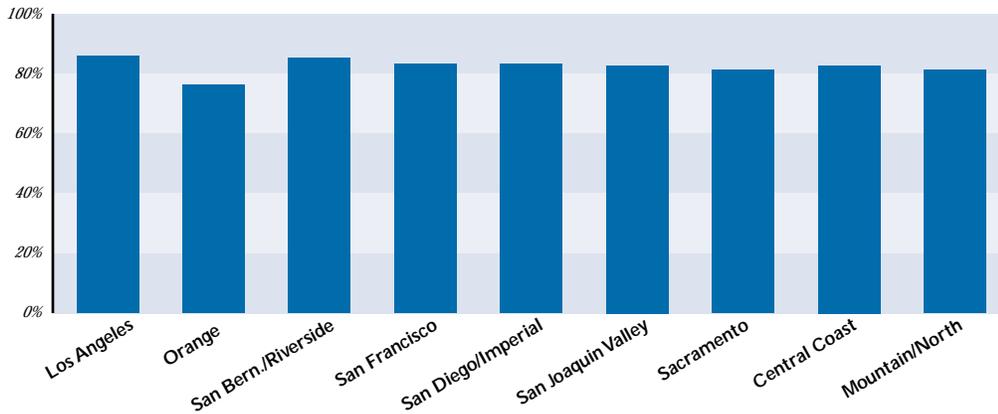
Percent of Employed California RNs Who Report That Their Primary Job is Direct Patient Care, 1997



Source: California Board of Registered Nursing, 1997.

FIGURE A8

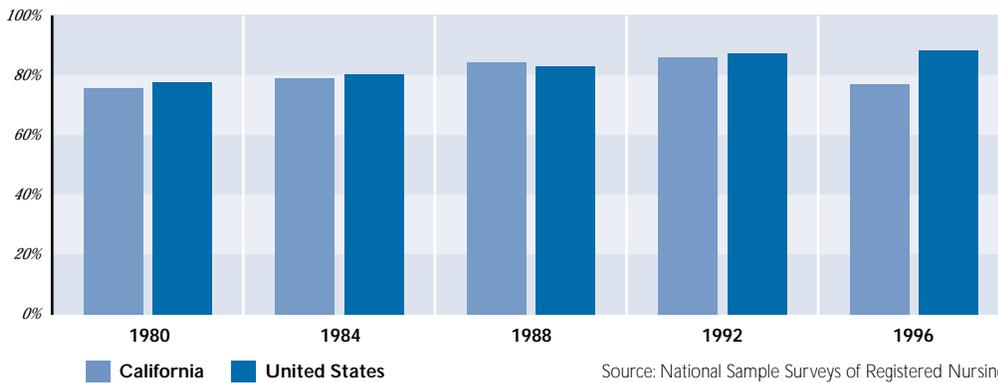
Percent of California RNs Employed in Nursing, 1997



Source: California Board of Registered Nursing, 1997.

FIGURE A9

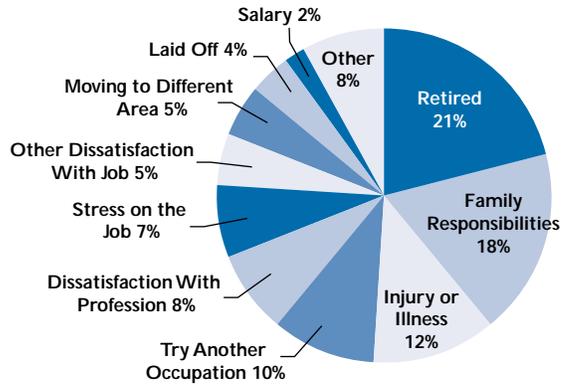
Percent of RNs Employed in Nursing, 1980-1996



Source: National Sample Surveys of Registered Nursing.

FIGURE A10

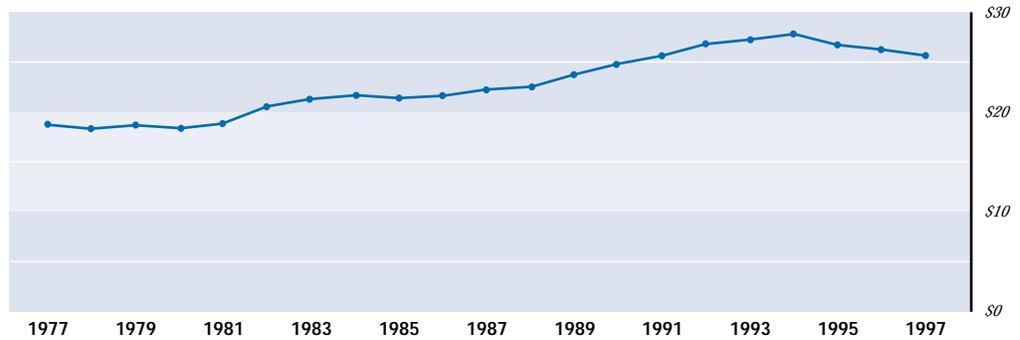
Reasons for Leaving Registered Nursing, California RNs, 1997



Source: California Board of Registered Nursing, 1997.

FIGURE A11

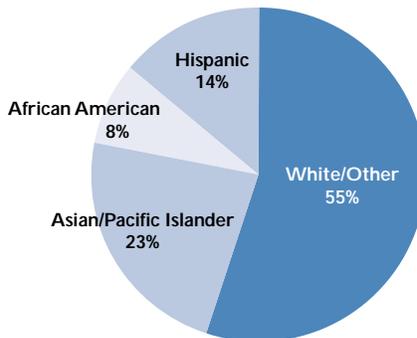
Average Hourly Wages Paid to RNs in California Hospitals, 1977-1998



Source: California Office of Statewide Health Planning and Development.

FIGURE A12

Racial and Ethnic Mix of 1998 Nursing Graduates, California



Source: California Postsecondary Education Commission Sacramento, California, 1999.

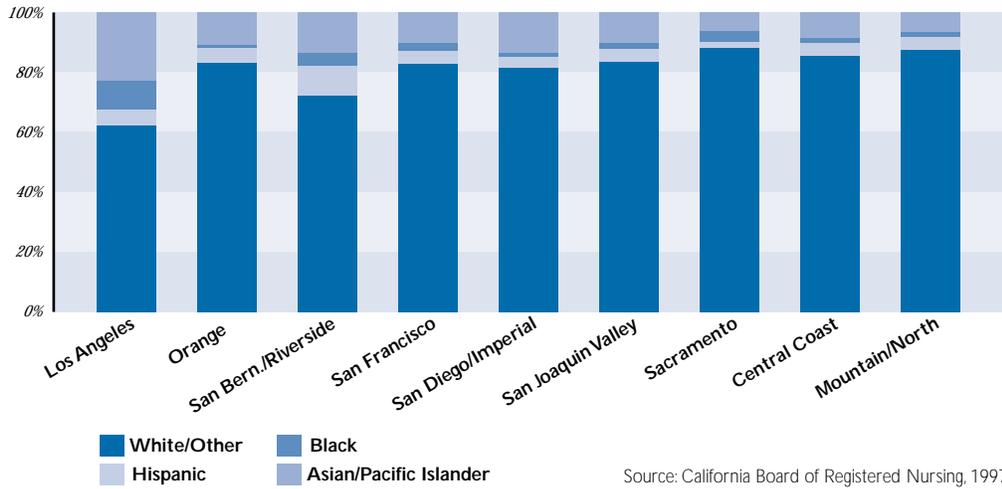


FIGURE A13
Racial and Ethnic Mix of California RNs, by Region, 1997

Source: California Board of Registered Nursing, 1997.

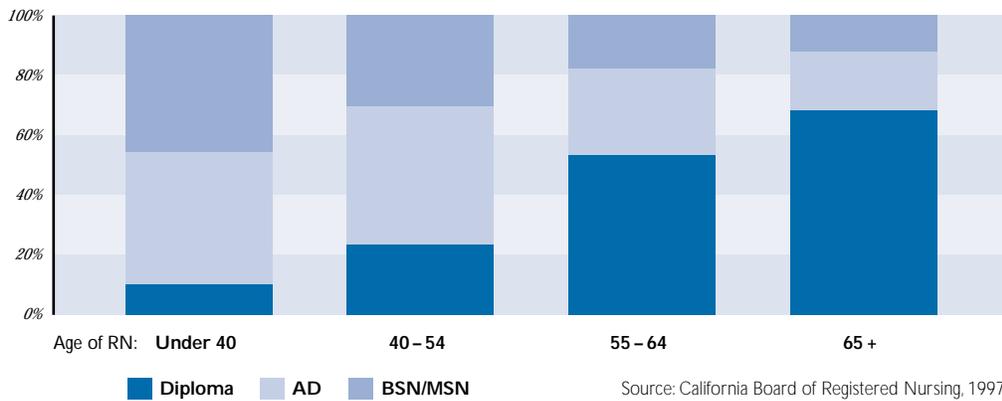


FIGURE A14
Basic Education of California RNs, by Age Group, 1997

Source: California Board of Registered Nursing, 1997.

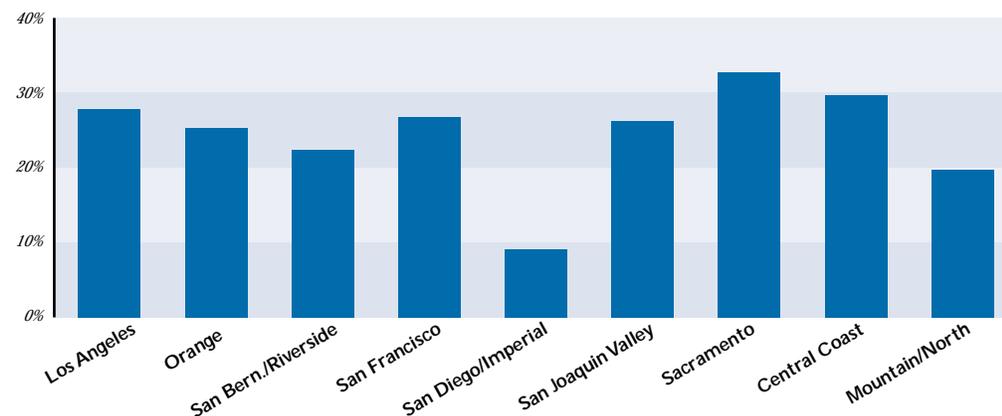


FIGURE A15
Percent of California RNs With a Job Outside Nursing, of Those Not Working in Nursing

Source: California Board of Registered Nursing, 1997.

* APPENDIX E:
PROJECTING FUTURE SUPPLY *and* DEMAND
FOR RNs IN CALIFORNIA

Projected Demand for RNs in California

Forecasters rely on a variety of analytic methods to project future demand for registered nurses (RNs) and other health professionals. One of the simplest methods is benchmarking, or ratio analysis. The cornerstone of benchmarking analysis is a ratio of the current supply of professionals working in a field to a measure of demand for their services, such as the population or the number of hospital beds in the geographic area of interest. Benchmarking assumes that this ratio is a reasonable proxy for current demand for a profession (Goodman, Fisher, Bubolz, Mohr, Poage & Wennberg, 1996). Estimates of future demand are generated by examining data on trends in the demand indicator, and then calculating the number of professionals required to ensure a constant ratio.

One reasonable benchmark for current demand for RNs in California is the ratio of RNs working in nursing to the state's population. According to the California Board of Registered Nursing, 235,566 persons were licensed to practice nursing in California and had California addresses as of December 5, 1999 (California Board of Registered Nursing, 1999). Results from the California Board of Registered Nursing's 1997 survey of a sample of California RNs indicate that 84% of RNs with California licenses are working in nursing (Barnes & Sutherland, 1999). These findings suggest that there are approximately 198,000 RNs working in California in the year 2000, a ratio of 571 working RNs per 100,000 population.

Using this ratio of working RNs to population as a benchmark, California would demand approximately 61,000 additional RNs between 2000 and 2020. This is equivalent to a 31% increase in the number of RNs working in California. The number of RNs demanded would increase even though the ratio to population is held constant, because California's population is projected to grow significantly over the next 20 years. The California Department of Finance (DoF) estimates that California's population will

increase by 31% during this period, from 34.5 million to 45.4 million persons (California Department of Finance, 1998).

But what if the current ratio of working RNs to population is not a reasonable proxy for future demand for RNs in California? What if, instead, California actually demanded considerably more or considerably fewer RNs per population? Either scenario seems plausible given the high degree of uncertainty regarding the future of health care finance and delivery.

A number of factors could combine to increase demand for RNs. Perhaps the most obvious of these are the minimum staffing ratios that the California Department of Health Services (DHS) must issue per AB 394. This legislation requires DHS to establish minimum staffing levels for “licensed nursing personnel” in acute care hospitals by January 2002. (“Licensed nursing personnel” include both RNs and LVNs.) If DHS follows the recommendations of labor unions representing RNs and establishes minimum staffing ratios that are considerably higher than current staffing ratios, many hospitals will have to hire additional RNs to comply with the law. The aging of the population is another relevant factor. The DoF has projected that the number of Californians age 85 or older, the age group with the greatest demand for health care services, will increase by 62% between 2000 and 2020 (California Department of Finance, 1998). In addition, advances in biomedical sciences and technology may yield new diagnostic tests and therapeutic procedures that may increase overall demand for health care services. If California’s economy remains strong, consumers will demand easy access to all tests and procedures and many employers will be willing to absorb significant increases in health insurance premiums to retain employees. Finally, some have argued that the current ratio of working RNs to 100,000 population is not an appropriate benchmark because California has the lowest ratio of working RNs per 100,000 population in the United States (Chancellor of the California Community Colleges, 2000).

Conversely, some of these factors could result in a decrease in demand for RNs. For example, DHS could issue minimum staffing regulations that would allow hospitals to staff with more LVNs and fewer RNs than they do at present. Some advances in biomedical science and technology, such as new pharmaceuticals and less invasive surgical

techniques, may reduce the need for hospitalization. A downturn in California's economy could lead to high unemployment, which would trigger a significant increase in the number of uninsured Californians. In addition, employers would strive aggressively to limit their health insurance costs by restricting benefits, requiring employees to cover a greater share of costs, or dropping health insurance benefits altogether.

FIGURE C1

*Projected Demand
for RNs in
California Under
Three Scenarios,
2000-2020*

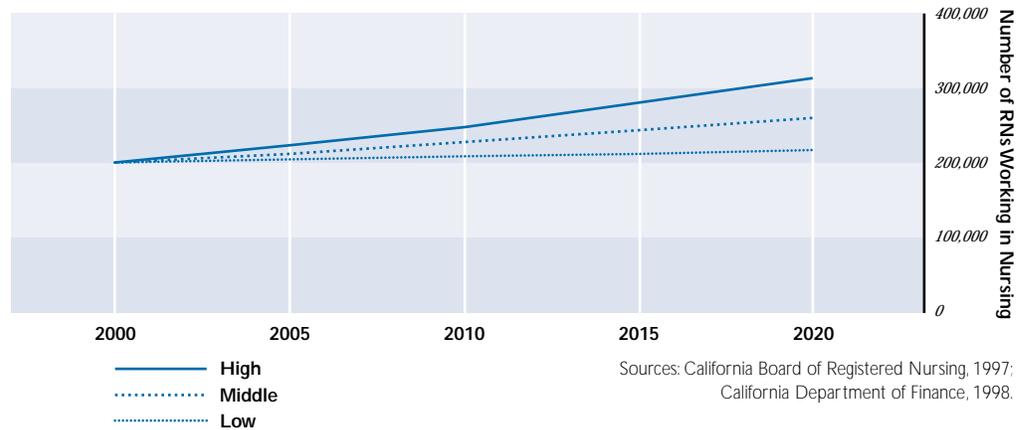


Figure C1 displays projected demand for RNs under the three hypothetical scenarios described above. The “middle” scenario is a status quo scenario that assumes that California will demand a constant ratio of 571 working RNs to population between 2000 and 2020. The “high” scenario assumes that demand for RNs will increase by 20% over this 20-year period, and the “low” scenario assumes that demand for RNs will decrease by 20% over this period. As noted previously, the “middle” scenario suggests that California would demand approximately 61,000 additional RNs between 2000 and 2020. Under the “high” scenario, California would demand nearly twice as many additional RNs (114,000) over this time period. Under the “low” scenario only 10,000 additional RNs would be demanded. Both the “high” and “low” scenarios displayed assume that changes in demand would be phased in over the 20-year period from 2000 to 2020. Demand might, in fact, increase more rapidly if DHS requires immediate compliance with the minimum hospital staffing ratios it must issue in 2002 and sets those minimum ratios at levels considerably higher than current hospital staffing levels.

How do benchmarking forecasts compare with those generated using more complex analytic methods? The California Employment and Development Department forecasts that between 1996 and 2006 California employers will seek to hire approximately 67,000 additional RNs to fill new positions and replace RNs who retire or leave nursing for jobs in other fields (California Employment Development Department, 1998). The US Bureau of Labor Statistics (BLS) projects that RN employment nationwide would increase by nearly 21% between 1996 and 2006 and that 680,000 additional RN positions will be available (Silvestri, 1997). BLS estimated that 8.5% of RN jobs in the United States in 1996 were in California. If this distribution remains constant, 58,000 additional RN jobs would be available in California between 1996 and 2006 (Coffman & Spetz, 1999).

One limitation of using benchmarks to generate projections of future demand for RNs is that these projections are very sensitive to population projections. Under any of the three scenarios, the number of RNs demanded would be much larger if older DoF population forecasts are used, because the older DoF forecasts projected more rapid growth in the state's population (California Department of Finance, 1995). Nevertheless, benchmarking is a useful tool for conceptualizing future demand for RNs. The simplicity of this method facilitates rapid updates whenever new population estimates are released.

Adequacy of RN Supply in California

Will California have an adequate supply of RNs to meet anticipated demand? The answer to this question depends on one's assumptions regarding future trends in both demand and supply. If current supply trends continue, California's supply of RNs would be barely adequate to maintain the current ratio of working RNs to population, let alone absorb an increase in demand for RNs.

Age-cohort models are typically used to estimate workforce supply in nursing and other fields. These models use age-specific data on RNs' labor force participation rates to develop a profile of the RN workforce in a baseline year. Working RNs are then "aged" over time, usually in five to ten year intervals, with age-specific labor force participation rates applied to each cohort as it is "aged". New RN graduates and migrants from other

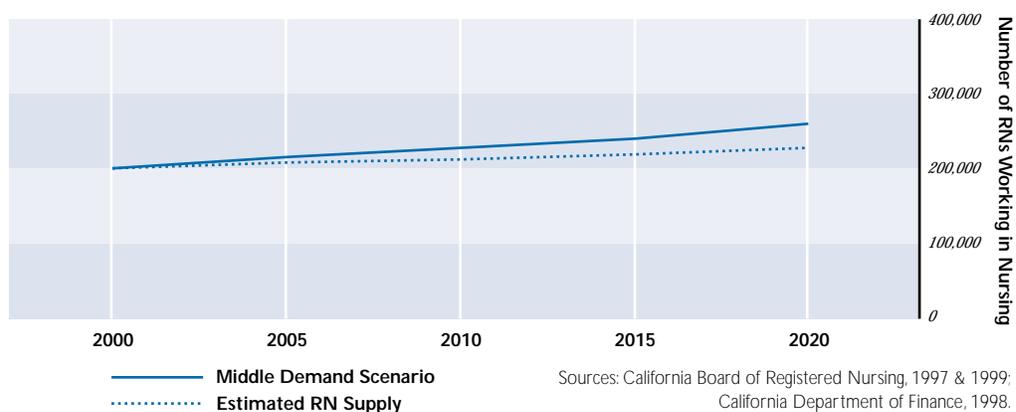
states and nations are factored into the model based on data on their age at application for licensure in California. Age-cohort models may use current data on labor force participation, graduations from basic RN programs and migration rates to generate “status quo” scenarios of future supply. These models can also be used to test the potential impact of changes in labor force participation, graduation and migration.

Figure C2 displays an estimate of the future supply of RNs in California. This estimate is derived from an age-cohort model in which data from the California Board of Registered Nursing were used to estimate the total number of licensed RNs in 1999 and the number of new licensees. Data from the Board’s 1997 survey of RNs were used to estimate the number and age distribution of RNs working in nursing in 2000, as well as the age distribution of new RN licensees in California (Barnes & Sutherland, 1999). The number of new RN graduates in 1998/99 was obtained from the California Board of Nursing’s *Annual School Report* (California Board of Registered Nursing, 2000).

This model predicts that the number of working RNs in California will grow by 18% between 2000 and 2020, from approximately 198,000 RNs to approximately 234,000 RNs. The ratio of RNs working in nursing to population in California would fall from 571 working RNs per 100,000 population in 2000 to 516 working RNs per 100,000 population in 2020. This forecast suggests that California’s supply of RNs would be inadequate to maintain current RN employment levels, let alone absorb a significant increase in demand for RNs. Approximately 25,000 additional RNs would be needed in 2020 to maintain a ratio of 571 working RNs to population (the “middle” demand scenario). Under the “high” demand scenario (a 20% increase in demand), approximately 77,000 additional RNs would be required in 2020.

FIGURE C2

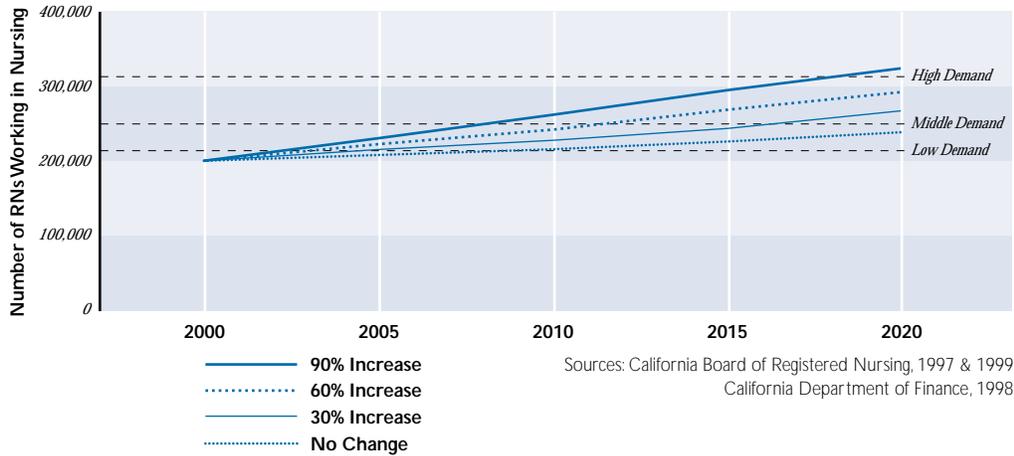
Projected RN Supply and Demand in California, 2000-2020



These projections of future RN supply in California are somewhat lower than prior forecasts. A report published by the California Board of Registered Nursing projects that the number of active California RN licensees employed in nursing will increase by 10% between 1997 and 2007, rising to approximately 221,000 RNs. The California Board of Registered Nursing’s projection of the number of active licensees in 2007 is

FIGURE C3

Projected RN Supply in California Under Four Scenarios, 2000-2020



approximately 3,000 RNs greater than our projection for 2010 (218,000). One explanation for the discrepancy between these forecasts is that our forecast used a lower baseline number of RNs with active licenses. The California Board of Registered Nursing used the number of active RN licensees living in California in 1997 (238,000 RNs), whereas our forecast used the number of active licensees in 2000 (235,000 RNs). In addition, the California Board of Registered Nursing incorporated information from its 1997 sample survey regarding respondents’ intention to work in nursing between 1997 and 2000. Our forecasts assume that age-specific rates of participation in the RN workforce would remain constant at 1997 levels.

Figure C3 displays the potential impact of these scenarios for increasing the number of RNs working in California. These scenarios involve increases in the number of new graduates from basic RN programs in California. These scenarios were chosen because state policymakers have more effective tools for increasing the number of new graduates than for implementing other strategies for increasing supply. State policymakers can provide funding to colleges and universities to expand or open RN education programs.

Conversely, migration to California is a matter of federal policy with respect to foreign RNs and a matter of personal choice for RNs from other parts of the United States. Baseline data on the annual number of new graduates from basic RN programs in California were obtained from the California Board of Registered Nursing's *1998–1999 Annual School Report* (California Board of Registered Nursing, 2000). During that year, 5,138 persons graduated from basic RN education programs in California (associate, bachelor's and entry level master's programs). Increases of 30%, 60% and 90% were calculated from this baseline. Based on data from the 1996 National Sample Survey of RNs, the projections assume that 99% of RNs who complete basic RN education in California remain in California to practice.

Implicit in these projections is the assumption that all new enrollees in basic RN programs would graduate. Data from the *1998–1999 Annual School Report* indicate that 19% of enrollees do not graduate. (California Board of Registered Nursing, 2000). If attrition rates remain in this range, basic RN education programs would have to admit additional enrollees to achieve the desired increase in the number of new RN graduates.

These forecasts suggest that a 30% increase in the number of new RN graduates would be adequate to maintain a constant ratio of working RNs to population (the “middle” demand scenario). However, if demand were to increase by 20%, as contemplated under the “high” demand scenario, an increase of almost 90% increase in new RN graduates would be required. Conversely, if demand were to decrease by 20%, the current number of RN graduates would be more than adequate to meet demand. Given the high degree of uncertainty about future demand, a 30% increase in new graduates may be the most prudent approach. An increase of this magnitude would provide sufficient numbers of working RNs to satisfy current demand and would mitigate the risk of oversupply in the event that demand does not increase dramatically.

These supply predictions are sensitive to several important assumptions. First, these projections assume that migration of RNs from other states will remain at the level found in the 1996 National Sample Survey of Registered Nurses. Historically, migrants have been a large source of California's RNs; 50% of the state's RNs were educated in another state or nation (Barnes & Sutherland, 1999). Actual rates of migration may be lower for several reasons.

First, enrollment in baccalaureate nursing programs in other states has declined significantly since the mid 1990s (Berlin, Bednash & Hosier, 1999). Second, the high cost of living in California may deter some RNs from relocating from other states.

In addition, the projections assume that California RNs' labor force participation rate would remain at the level found among respondents to the California Board of Registered Nursing's 1997 survey (84%). Some have hypothesized that aggregate labor force participation will fall as the number of older RNs increases because older RNs are less likely to work (Sechrist, Lewis & Rutledge, 1999). This hypothesis assumes that the labor force participation rates of RNs who enter their 50s and 60s over the next 20 years will be similar to those of RNs now in these age groups.

Finally, conclusions about the adequacy of supply depend heavily on forecasts of California's population growth. If the state's population grows more rapidly than projected, more RNs will be required to meet any given level of demand. Alternately, if the population grows more slowly, fewer RNs would be required. Actual rates of population growth will depend largely on California's economy and those of other states and nations that are large sources of migrants to California.

* REFERENCES

AB 655 (Scott): Educating California's future nursing work force. (1999). Sacramento, CA: Report of the Chancellor of the California Community Colleges, the Chancellor of the California State University, the President of the University of California, and the President of the Association of Independent Colleges and Universities to the Governor and Legislature. (<http://www.ucihs.uci.edu/cspcn>.)

Abate, T. (2000, September 22). A handle on health plans: Web sites can help employees choose the best medical coverage. *San Francisco Chronicle*, p. B1.

American Association of Colleges of Nursing. (1999). *1998 – 1999 enrollment and graduations in baccalaureate and graduate programs in nursing*. Washington, DC: Author.

Assembly Committee on Labor and Employment analysis of SB 146.
http://info.sen.ca.gov/cgibin/pagequery?type=sen_bilinfo&site=sen&title=Bill+Information.

Astin, A. (1998). The changing American college student: Thirty-year trends, 1966 – 1996. *The Review of Higher Education*, 21(2), 115 – 135.

Barnes, C., & Sutherland, S. (1999). *Survey of registered nurses in California, 1997*. Sacramento, CA: Board of Registered Nursing.

Barter, M., & Furmidge, M. L. (1995). Nursing's new frontier: Reinventing our practice in a restructured health care system. *Seminars for Nurse Managers*, 3(4), 166 – 170.

Bellet, P. S., & Whitaker, R. C. (2000, March). Evaluation of a pediatric hospitalist service: Impact on length of stay and hospital charges. *Pediatrics*, 105, 478 – 484.

Berens, M. (2000, September 10). Nursing mistakes kill, injure thousands. *Chicago Tribune*, <http://www.chicago.tribune.com/news/nationwide/article/0,2669,2-46844.FF.html>.

Brannon, R. L. (1996). Restructuring hospital nursing: Reversing the trend toward a professional work force. *International Journal of Health Services*, 26(4), 643 – 654.

Brooks, K. L., & Shepherd, J. M. (1992). Professionalism versus general critical thinking abilities of senior nursing students in four types of nursing curricula. *Journal of Professional Nursing*, 8(2), 87 – 95.

- Buerhaus, P. (1998). Is another RN shortage looming? *Nursing Outlook*, 46(3), 103 – 108.
- Buerhaus, P. I. (1999). Is a nursing shortage on the way? *Nursing Management*, 30(2), 54 – 55.
- Buerhaus, P. I., Staiger, D. O., & Auerbach, D. I. (2000). Implications of an aging registered nurse workforce. *Journal of the American Medical Association*, 283(22), 2948 – 2987.
- Buerhaus, P., & Staiger, D. (1997). Future of the nurse labor market according to health executives in high managed-care areas of the United States. *Image — The Journal of Nursing Scholarship*, 29(4), 313 – 318.
- Bullock, D. (1998, March 2). *Testimony on behalf of California Community Colleges before the California Senate Committee on Business and Professions*. Unpublished testimony.
- Bureau of Labor Statistics. (1998a). *Labor force statistics from the current population survey: Work at home in 1997*. <http://stats.bls.gov:80/news.release/homey.nws.htm>. (Date of access: August 29, 2000.)
- Bureau of Labor Statistics. (1998b). *Labor force statistics from the current population survey: Workers on flexible and shift schedules in 1997 summary*. <http://stats.bls.gov:80/news.release/flex.nws.htm>. (Date of access: August 29, 2000.)
- Bureau of Labor Statistics. (2000, August 29). *Labor force statistics from the current population survey: Employee tenure summary*. <http://stats.bls.gov:80/news.release/tenure.nr0.htm>. (Date of access: August 29, 2000.)
- California Board of Registered Nursing. (1999). *Number of licensed registered nurses per county as of 12/5/99*. Information requested by authors.
- California Board of Registered Nursing. (2000). *Annual school report, 1998 – 99*. Sacramento, CA: Author.
- California Department of Education, Educational Demographics Unit. (2000). *Number of dropouts in California public schools, grades 9–12 by grade level, ethnic groups and gender for the year 1997–98*. <http://data1.cde.ca.gov/dataquest/state.asp?cChoice=GrEthGen&cYear=1997-98&submit1=Submit>. (Date of access: February 2, 2000.)
- California Department of Finance. (1998). *County population projections with age, sex and race/ethnic detail*. Sacramento, CA: Author.

- California Department of Finance. (2000). *City/county population estimates, with annual percent change, January 1, 1999 and 2000*. Sacramento, CA: Author.
- California Employment Development Department. (1998). *Employment projections by occupation*. Sacramento, CA: Author.
- California Nurses Association. (2000, August 30). *Novato RNs approve new agreement*. <http://www.cna.org>.
- California Office of Statewide Health Planning and Development. (1985 – 1999). *Annual disclosure reports, 1983–84 through 1997–98*. Sacramento, CA: Author.
- California Postsecondary Education Commission. (1999). *Nursing degrees (associate and generic bachelor's degrees) awarded 1996–1998*. Special tabulation prepared for authors.
- California Postsecondary Education Commission. (2000). Special tabulation prepared for authors.
- California Strategic Planning Committee for Nursing. (1999). *Planning for California's nursing work force, phase II report*. <http://www.ucihhs.uci.edu/cspcn>.
- Campbell, P. (1996). *Population projections for states by age, sex, race and Hispanic origin: 1995 to 2025*. Washington, DC: U.S. Census Bureau, Population Division, PPL-47.
- Cantor, J. C., Miles, E. L., Baker, L., & Barker, D. (1996). Physician service to the underserved: Implications for affirmative action in medical education. *Inquiry, 33*, 167 – 180.
- Carlsen, R. H., & Malley, J. D. (1981). Job satisfaction of staff registered nurses in primary and team nursing delivery systems. *Research in Nursing and Health, 4*(2), 251 – 260.
- Center for Health Workforce Studies & New Century Concepts, LLC. (1997). *The changing health care system in New York City: Implications for the health workforce*. Rensselaer, NY: Center for Health Workforce Studies. (<http://www.ucihhs.uci.edu/cspcn>).
- Chavigny, K., & Lewis, A. (1984). Team or primary nursing care? *Nursing Outlook, 32*(6), 322 – 327.
- Cleeland, N., & Bernstein, S. (2000, September 26). Kaiser, union coalition enter 5-year collaborative contract. *Los Angeles Times*, p. B1.

- Coffman, J., & Spetz, J. (1999). Maintaining an adequate supply of RNs in California. *Image — the Journal of Nursing Scholarship*, 31(4), 389 – 393.
- Comins, J. (2000a, June 14). Personal communication with Jean Ann Seago.
- Comins, J. (2000b, September 25). Personal communication with Jean Ann Seago.
- Costello, K. (1998). Differentiated practice — The recycled professional vs technical debate. *Revolution*, 8(3–4), 24 – 25.
- Craig, D. E., Hartka, L., Likosky, W. H., Caplan, W. M., Litsky, P., & Smithey, J. (1999, February 16). Implementation of a hospitalist system in a large health maintenance organization: The Kaiser Permanente experience. *Annals of Internal Medicine*, 130(4 part 2), 355 – 359.
- Davis-Martin, S., & Skalak, C. (1992). Differences in patient rating of care provided by BSN and ADN students. *Nursing Forum*, 27(3), 23 – 28.
- Dionne, E. J. (1998, September 1). Reform generation? *The Washington Post*, p. A19.
- Domrose, C. (2000, July 24). Staying power: Keeping nurses isn't about showing them the money. *Nurseweek*, <http://www.nurseweek.com/news/features/00-07/retain.html>.
- Ernst, C. (2000). Reflections — The issues, thoughts and strategies explored at the 82nd annual invitational conference on human issues in management. *Silver Bay Association Invitational Conference on Human Issues in Management*, 20 – 25.
- Fisher, J. P. (2000, September 26). Kaiser, union reach a deal: Five-year agreement boosts pay, benefits. *Sacramento Bee*, p. D1.
- Fitzpatrick, J. M., While, A. E., & Roberts, J. D. (1994). The measurement of nurse performance and its differentiation by course of preparation. *Journal of Advanced Nursing*, 20(4), 761 – 768.
- Forsey, L. M., Cleland, V. S., & Miller, B. (1993). Job descriptions for differentiated nursing practice and differentiated pay. *Journal of Nursing Administration*, 23(5), 33 – 40.
- Fox, S. (2000, November 28). Personal communication with Jean Ann Seago.

- Fox, S., Walker, P., & Bream, T. (1999). *California's framework for competency-based role differentiation in nursing*. Sacramento, CA: California Strategic Planning Committee for Nursing/Colleagues in Caring.
- Gray, B. B. (2000, March 27). Forget the cheerleading: There's no simple solution to this shortage. *WebMD*, <http://webmd-practice.medcast.com/Z/Channels/2863/article310>. (Date of access: July 14, 2000.)
- Hanson, H. A. (1988a). *A comparative study of ADN and BSN curricula in California schools of nursing: ADN-BSN Articulation Committee*. Sacramento, CA: California Association of Colleges of Nursing and the Associate Degree Nursing Directors of California.
- Hanson, H. A. (1988b). *A study of baccalaureate degree nursing program curricula in California: ADN-BSN Articulation Committee*. Sacramento, CA: California Association of Colleges of Nursing and the Associate Degree Nursing Directors of California.
- Hanson, H. A. (1988c). *Summary report survey of California associate degree nursing curricula: ADN-BSN Articulation Committee*. Sacramento, CA: California Association of Colleges of Nursing and the Associate Degree Nursing Directors of California.
- Johnson, J. H. (1988). Differences in the performances of baccalaureate, associate degree, and diploma nurses: A meta-analysis. *Research in Nursing and Health*, 11(3), 183 – 197.
- Kaiser Family Foundation & Harvard School of Public Health. (1999). *Survey of physicians and nurses*. Menlo Park, CA: Kaiser Family Foundation.
- Kaiser Family Foundation, Health Research and Educational Trust, & the Center for Health Policy Studies at the University of California, Berkeley. (2000). *Employer-based health insurance in California: Highlights from the 1999 California employer survey*. Menlo Park, CA: Kaiser Family Foundation.
- Kelley, D. (1998, December 2). Hospitals offering incentives in bid to hire skilled nurses. *Los Angeles Times*, p. B1.
- Koerner, J. (1992). Differentiated practice: The evolution of professional nursing. *Journal of Professional Nursing*, 8(6), 335 – 341.
- Kohn, L. T., Corrigan, J. M., Donaldson, M. S., & the Committee on Quality of Health Care in America, Institute of Medicine. (2000). *To err is human: Building a safer health system*. Washington, DC: National Academy Press.

- Komaromy, M., Grumbach, K., Drake, M., Vranizan, K., Lurie, N., Keane, D., & Bindman, A. (1996). The role of black and Hispanic physicians in providing health care for underserved populations. *New England Journal of Medicine*, *334*(20), 1305 – 1310.
- Kovner, C. T., & Schore, J. (1998). Differentiated levels of nursing work force demand. *Journal of Professional Nursing*, *14*(4), 242 – 253.
- Kucher, K. (2000, June 1). Nurse shortage: It hurts all over: Local hospitals, mirroring national trend, plagued by vacancies. *San Diego Union-Tribune*, p. A21.
- Leovy, J. (1999, November 23). Dropout, failure rates in nursing programs soar. *Los Angeles Times*, p. A1.
- Louden, D., Crawford, L., & Trotman, S. (1996). *Profiles of the newly licensed nurse: Historical trends and future implications* (3rd ed.). New York: National League for Nursing Press.
- Luft, H. S. (1996). Modifying managed competition to address cost and quality. *Health Affairs*, *15*(1), 23 – 38.
- National Association of Hispanic Nurses. (1998). *Bridges and barriers: Educational mobility of Hispanic nurses*. Washington, DC: Author.
- National Association of Home Builders. (2000, August 30). *Housing opportunity index: Second quarter 2000*. http://www.nahb.com/facts/hoi/2000_2Q.
- National Center for Education Statistics. (2000). *Projections of education statistics to 2008*. <http://nces.ed.gov/pubs98/pj2008/098c04.html>. (Date of access: August 29, 2000.)
- National League for Nursing Center for Research in Nursing Education and Community Health. (1997). *1997 nursing data review*. New York: National League for Nursing Press.
- National Sample Survey of Registered Nurses*. (1996). Washington, DC: Division of Nursing, U.S. Bureau of Health Professions, U.S. Department of Health and Human Services. Authors' tabulation.
- Pardue, S. F. (1987). Decision-making skills and critical thinking ability among associate degree, diploma, baccalaureate, and master's-prepared nurses. *Journal of Nursing Education*, *26*(9), 354 – 361.

- Peter Hart Associates. (1998). *Leadership for a new century*. Milwaukee: Public Allies.
- Peterson's. (1998). *Peterson's Guide to Nursing Programs*. Princeton, NJ: Peterson's.
- Pew Health Professions Commission. (1995). *Critical challenges: Revitalizing the health professions for the twenty-first century*. San Francisco: UCSF Center for the Health Professions.
- Ponitz, K., Mortimer, J., & Berman, B. (2000, April). Establishing a pediatric hospitalist program at an academic medical center. *Clinical Pediatrics*, 39(4), 221 – 227.
- Rabinowitz, H., Diamond, J., Veloski, J., & Gayle, J. (2000). The impact of multiple predictors on the generalist physicians' care of underserved populations. *American Journal of Public Health*, 90(8), 1225 – 1228.
- Roberson, M. (2000, September 25). Personal communication with Jean Ann Seago.
- Rose, C. (2000, June 28). Children's Hospital nurses OK 1st labor pact: 3 percent raises due in 2001, 2002. *San Diego Union-Tribune*, pp. B2 & B7.
- Rosenthal, E. (1996, August 19). Once in big demand, nurses are now targets of hospital cutbacks. *New York Times*, p. A16.
- Saha, S., Komaromy, M., Koepsell, T., & Bindman, A. (1999). Patient-physician racial concordance and the perceived quality and use of health care. *Archives of Internal Medicine*, 159(9), 997 – 1004.
- Saha, S., Taggart, S., Komaromy, M., & Bindman, A. (2000). Do patients choose physicians of their own race? *Health Affairs*, 19(4), 76 – 83.
- Schauffler, H., McMenamin, S., & Zawacki, H. (2000). *Health care trends and indicators in California and the United States*. Menlo Park, CA: Kaiser Family Foundation.
- Schneider, E., & Guralnik, J. (1990). The aging of America: Impact on health care costs. *Journal of the American Medical Association*, 263(17), 2335 – 2340.
- Seago, J. A., & Ash, M. (2000). *RN unions and patient outcomes*. Unpublished paper in review.

- Sechrist, K. R., Lewis, E. M., & Rutledge, D. N. (1999). *The California nursing work force initiative planning for California's nursing work force, phase II final report*. Sacramento, CA: California Strategic Planning Committee for Nursing/Colleagues in Caring.
- Shukla, R. K. (1983). All-RN model of nursing care delivery: A cost-benefit evaluation. *Inquiry, 20(2)*, 173 – 184.
- Skiles Luke, S. (2000, August 3). Hospitals offer perks for nurses. *Associated Press*, <http://wire.ap.org>.
- Sochalski, J., Aiken, L. H., & Fagin, C. M. (1997). Hospital restructuring in the United States, Canada, and Western Europe: An outcomes research agenda. *Medical Care, 35(10 Suppl)*, OS13 – 25.
- Spetz, J. (1998). Hospital employment of nursing personnel: Has there really been a decline? *The Journal of Nursing Administration, 28*, 20 – 27.
- Spetz, J. (2000). Hospital use of nursing personnel: Holding steady through the 1990s. *The Journal of Nursing Administration, 30(7/8)*, 344 – 346.
- Spetz, J. (Forthcoming). What should we expect from California's minimum nurse staffing legislation? *The Journal of Nursing Administration*.
- Spetz, J., Seago, J. A., Coffman, J., Rosenoff, E., & O'Neil, E. (Forthcoming). *Minimum nurse staffing ratios in California acute care hospitals*. San Francisco: UCSF Center for the Health Professions.
- Spetz, J., Seago, J., & Mitchell, S. (1999). *Changes in hospital ownership in California*. San Francisco: Public Policy Institute of California.
- Sprottle, N. (1998, March 2). *Testimony on behalf of California State University before the California Senate Committee on Business and Professions*. Unpublished testimony.
- Sussman, D. (2000, June 12). Let's make a deal: Health care facilities offer creative perks to offset shortage of nurses. *NurseWeek*, <http://www.nurseweek.com/news/features/00-07/retain.html>.
- Tabone, S. (1999). Thoughts on nurse shortages. *Texas Nursing, 73(9)*, 4 – 5, 10 – 11.

- U.S. Census Bureau, Population Projection Program, Population Division. (2000). *Population projections of the U.S. by age, sex, race, Hispanic origin, and nativity: 1999 to 2100*. <http://www.census.gov/population/www/projections/natsum-T3.html>. (Date of access: September 4, 2000.)
- U.S. Census Bureau. (1997). *How we're changing: Demographic state of the nation: 1997*. Washington, DC: Author.
- U.S. Department of Education. (1997). *National Center for Education Statistics, higher education general information survey (HEGIS): "Degrees and other formal awards conferred" survey, 1997*. Washington, DC: Author.
- U.S. Department of Labor. (1999, September). *Futurework: Trends and challenges for work in the 21st century*. <http://www.dol.gov/dol/asp/public/futurework/report.htm>. (Date of access: September 27, 2000.)
- Workman, B. (2000, July 25). Stanford nurses offered 10% raise: 'Tough vote' foreseen on deal to end 7-week walkout at two hospitals. *San Francisco Chronicle*, p. A17.
- Wunderlich, G. S., Sloan, F. A., & Davis, C. K. (1996). *Nurse staffing in hospitals and nursing homes: Is it adequate?* Washington, DC: National Academy Press.
- Yett, D. E. (1975). *An economic analysis of the nurse shortage*. Lexington, MA: Lexington Books.
- Zalon, M. L. (1994). Will there be a shortage of nurses in the future? *Pa Nurse*, 49(8), 6.
- Zoellner, T. (2000, May 26). UC and nurses' union in tentative agreement: Membership to vote on 3 percent raise. *San Francisco Chronicle*, p. A23.