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A Shortage of Registered Nurses: Is It On the Horizon or Already Here?

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Summary

Shortages of workers in various occupations and industries have been widely reported starting in the late 1990s. It is not unusual for firms to have difficulty hiring and retaining employees after the economy has been expanding for many years. What makes the current situation different is that the unemployment rate has been lower than it was during many prior cyclical peaks. In addition, the labor force is aging as most baby-boomers (i.e., the very large group born between 1946 and 1964) are in the last half of their working lives and as fewer workers are available from the smaller generation that followed them. For certain industries and occupations, there are additional elements — also unrelated to the business cycle — that make current and future labor market conditions distinctive. For example, the increasing longevity of the population combined with a growing share of elderly persons have been putting added pressure on the health care delivery system. Moreover, although women continue to account for the majority of personnel in many health care occupations, their career opportunities have widened over the years. Thus, health care providers who previously might have thought their supply of labor was fairly well assured must now compete with other fields for the interest of students.

The largest, traditionally female-dominated health care occupation is registered nurses (RNs). It has been asserted that too few RNs currently are available to meet employer demand or that there will be a shortage in the not-too-distant future. Analysts use a combination of indicators (e.g., the occupational unemployment rate as well as the pace of wage increases and of job growth) to determine the current state of the labor market because no direct measure exists of supply-demand imbalance. It cannot be stated conclusively, based upon the available labor market indicators, that there is an across-the-board shortage of RNs at the present time. Nonetheless, in certain geographic areas or for certain types of nurses (e.g., those who staff hospital emergency rooms) there could be a shortfall of RNs, but this suggests a maldistribution of labor rather than a shortage *per se*.

There is more convincing evidence pointing toward supply in the RN labor market failing to meet demand around 2010, unless ameliorative actions are undertaken. The nursing workforce has been aging to an even greater extent than the labor force as a whole. This situation has arisen, in part, because the smaller generation of young women who followed the baby-boomers has been less inclined to enter nursing given the more attractive career options that have opened up to them in recent decades. The potential RN shortage thus differs from its predecessors which were not marked by a need to replace substantial numbers of retiring nurses, and as a result, it may prove more difficult to remedy. Employers will likely try to simultaneously curtail their demand for RNs and attract more women and men to the occupation by reassigning some tasks now performed by RNs to paraprofessional nursing personnel, utilizing productivity-enhancing technology, increasing RNs' wages and improving working conditions. Other efforts might include upgrading the image of nurses, lowering education costs and importing more nurses from abroad.

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A Shortage of Registered Nurses: Is It On the Horizon or Already Here?

Shortages of workers in various occupations (e.g., computer systems analysts) and in various industries (e.g., construction) have been widely reported in recent years. It is not unusual for employers to have difficulty hiring and retaining employees after the economy has been expanding for quite some time. What makes the current situation different, however, is that the unemployment rate during the latest economic expansion has been lower than it was during many of the prior cyclical peaks.¹

In addition, the labor force is aging as most baby-boomers (i.e., the large group born between 1946 and 1964) are in the last half of their working lives and as fewer workers are available from the smaller generation that followed them. Higher rates of productivity likely will in some but not all instances be able to compensate for the smaller replacement pool of workers and thereby allow employers to continue to fulfill consumers' demand for goods and services.

For certain industries and occupations, there are additional elements — also unrelated to the business cycle — that make current and future labor market conditions unique. The increasing longevity of the population combined with a growing share of elderly persons have been putting added pressure on the nation's health care delivery system.² And, the implications of inadequate staffing among health care workers differ from those of other workers in many industries. For example, a dearth of blue-collar assemblers and fabricators might mean that consumers have fewer cars to choose from while a scarcity of health care personnel might jeopardize the quality of patients' care. Moreover, although women continue to account for the majority of staff in many health care jobs,³ their career opportunities have widened over the years. Thus, health care providers who previously might have thought their supply of labor was fairly well assured must now compete with other fields for the interest of students.

¹In September and October 2000, the unemployment rate fell to its lowest point in the latest economic expansion. Although it has since risen from 3.9% (e.g., in April 2001 it was 4.5%), the unemployment rates during many of the prior nine post-war peaks in the business cycle remain lower: 5.4% (July 1990), 7.2% (July 1981), 6.3% (January 1980), 4.8% (November 1973), 3.5% (December 1969), 5.2% (April 1960), 4.1% (August 1957), 2.6% (July 1953), and 3.8% (November 1948).

²Wunderlich, Gooloo, with Frank A. Sloan andCarolyn K. Davis (eds.). *Nursing Staff in Hospitals and Nursing Homes*. Washington, D.C., National Academy Press, 1996.

³In 2000, women accounted for 93.6% of licensed practical nurses; 92.8% of registered nurses; 89.9% of nursing aides, orderlies and attendants; 75.0% of clinical lab technologists and technicians; 74.7% of therapists; and 69.2% of radiologic technicians. U.S. Bureau of Labor Statistics. *Employment and Earnings*, January 2001.

The largest, traditionally female-dominated health care occupation is registered nurses (RNs). It has been asserted that there are too few RNs available today to meet employers' needs, that is, there is a shortage of nurses at the present time. It also has been estimated that there could well be a shortage of RNs in the not-too-distant future. This report will analyze the labor market conditions facing RNs and their employers.

Who Are We Talking About?

The exact nature of RNs' daily duties usually depends on the setting in which they work.⁴

- In hospitals, staff RNs typically “provide bedside nursing care and carry out medical regimens.” They often supervise licensed practical nurses (LPNs) and aides.
- Nurses who work in physicians' offices usually prepare patients for exams and help doctors perform them, give injections, apply dressings and sometimes keep the offices' records.
- Nursing home RNs largely perform administrative and supervisory functions. They also may evaluate the health of residents and work up treatment plans as well as “perform difficult procedures.”
- Home health nurses “provide periodic services, prescribed by a physician” in the homes of patients. They often work independently but also supervise home health aides.
- Government and private agencies, schools, senior citizen centers and other community-based organizations employ public health nurses. They provide instruction about such things as disease prevention and nutrition as well as arrange for various health screenings.
- Occupational health or industrial nurses work at firms that engage them to provide limited medical care. In addition to providing emergency assistance and writing up accident reports, these RNs offer health counseling and help with injections.
- Head nurses or nurse supervisors perform such administrative and supervisory functions as creating work schedules for and assigning duties to nurses and aides, “provid[ing] or arrang[ing] for training, and visit[ing] patients to observe nurses.”
- Nurse practitioners provide primary health care (i.e., prescribe medication and otherwise diagnose and treat common acute illnesses and injuries). Other advanced practice nurses include clinical nurse specialists, nurse anesthetists and nurse midwives. They all must fulfill higher educational and clinical experience requirements than those established for the aforementioned groups.

⁴All information in this section is drawn from U.S. Bureau of Labor Statistics. *Occupational Outlook Handbook 2000-01 Edition* unless otherwise noted. Available at [<http://stats.bls.gov:80/oco/ocos083.htm>]. (Hereafter cited as BLS, *Occupational Outlook Handbook*.)

A basic nursing education in all states consists of graduation from a nursing program and passing a national licensing exam. Hospitals offer diploma programs, which take 2-3 years to complete. Although 63% of RNs in 1980 graduated from diploma programs, the share who received their basic nursing education from this source was more than halved, to 30%, by 2000.⁵ Community colleges offer associate degrees in nursing (ADNs), which take about 2 years to complete. In 2000, they accounted for 40% of registered nurses — about twice their share of 19% in 1980. Colleges and universities offer bachelors degrees in nursing (BSNs), which take 4 or 5 years to complete. The share of RNs who initially earned BSNs also rose considerably, from 17% in 1980 to 29% in 2000. In addition to classroom instruction, nursing students must have supervised clinical experience in hospitals, nursing homes, home health agencies or other health care facilities.

The Demand for Registered Nurses

No direct measure of employer demand for workers exists. Instead, a commonly used proxy is employment. It is an imperfect substitute, however, because the number of employed workers can understate demand if supply limitations prevent firms from utilizing as many workers as they would like.

Where Will RN Job Growth Be?

As shown in **Table 1**, hospitals are projected to continue to employ the majority of RNs (53% of the total in 2008). Employment of hospital staff nurses is expected to grow more slowly compared to other RNs because activities once performed on an inpatient basis increasingly are being performed on an outpatient basis at hospitals or in other settings. For example, the number of new nursing jobs is projected to expand by 44.5% in physicians' offices compared to 7.9% in hospitals. Although the number of patients who stay overnight in hospitals could well remain unchanged in future years, "the intensity of nursing care is likely to increase, requiring more nurses per patient."⁶

The ranks of RNs already employed in large numbers at other workplaces are expected to expand substantially. Specifically, the number of new jobs for nurses at home health agencies is projected to increase by 82.2%, and the number for nurses at nursing/personal care facilities is projected to increase by 41.9%. The preference of people to be cared for in their homes and new technologies that permit complex treatments to be performed at home, as well as the "growing number of older persons

⁵Health Resources and Services Administration. Division of Nursing. Bureau of Health Professions. *National Sample Survey of Registered Nurses — March 2000*. Preliminary Findings, February 2001. Available at [ftp://158.72.84.9/ftp/bhpr/nursing/sampsurvpre.pdf]. (Hereafter cited as HRSA, *National Sample Survey of Registered Nurses*.)

⁶BLS, *Occupational Outlook Handbook*.

with functional disabilities, ... many of whom will require long-term care,” explain these disparate projected trends in RN employment by industry.⁷

Table 1. Employment of Registered Nurses, 1998 (actual) and 2008 (projected), by Industry

Industry	1998 Employment		2008 Employment		Change, 1998-2008	
	Number	% Distribution	Number	% Distribution	Number	Percent
Total, all industries	2,078,810	100	2,529,674	100	450,864	21.7
Hospitals	1,238,720	60	1,336,476	53	97,756	7.9
Physicians' offices	173,167	8	250,246	10	77,079	44.5
Nursing & personal care facilities	149,355	7	211,985	8	62,629	41.9
Home health care services	129,304	6	235,573	9	106,269	82.2
Education, public & private	65,103	3	82,494	3	17,391	26.7
Personnel supply services	52,613	3	71,303	3	18,690	35.5
Federal government	46,060	2	45,228	2	-833	-1.8
Local gov't, excl. ed. & hospitals	43,570	2	48,800	2	5,230	12.0
State gov't, excl. ed. & hospitals	38,035	2	41,226	2	3,191	8.4
Health & allied services, nec ^a	32,336	2	53,739	2	21,403	66.2

⁷*Ibid.*

Industry	1998 Employment		2008 Employment		Change, 1998-2008	
	Number	% Distribution	Number	% Distribution	Number	Percent
Self-employed workers, primary job	17,702	1	23,637	1	5,935	33.5
Residential care	16,273	1	24,032	1	7,760	47.7
Individual & misc. social services	11,130	1	14,981	1	3,851	34.6
Management & public relations	9,829	0	14,314	1	4,484	45.6
Offices of other health practitioners	8,648	0	17,294	1	8,646	100.0
Medical service & health insurance	7,507	0	13,004	1	5,497	73.2

Source: U.S. Bureau of Labor Statistics. Occupation-Industry Matrix derived from the Occupational Employment Survey which queries employers.

Note: Numbers may not add to totals and percentages may not add to 100 because only industries that account for at least 1% of total RN employment in 1998 or 2008 are shown.

^anec = not elsewhere classified.

Future Job Openings for RNs

The demand for labor can increase for two reasons. When consumers want more of an industry's goods or services, firms may add employees to their payrolls (i.e., the job growth discussed above). Hiring also may increase if more of a firm's employees leave to take positions at other employers, or exit the labor force to return to school or due to retirement, disability or death (i.e., replacement needs).

Rapid and Large Job Growth. The employment growth rate of RNs through 2008 is projected to be above the all-occupations' average (21.7% and 14.4%, respectively).⁸ Nursing also is among the occupations expected to add the

⁸Braddock, Douglas. Occupational Employment Projections to 2008. *Monthly Labor* (continued...)

most new jobs over the 10-year period (450,864 or 2.2% of total job growth). Technological advances that allow more medical problems to be treated and an increasing number of older people who, compared to younger people, are more likely to need medical care underlie the considerable increase in demand for RNs anticipated in the next several years.

Substantial Retiree Replacement Needs. The need to replace workers across all industries will accelerate as more members of the baby-boom generation retire. Health care providers generally, and hospitals particularly as the largest employer of RNs, could be among the industries most affected by this demographic phenomenon because an above-average proportion of nurses are aged 45 and older (39% of RNs versus 34% of all employees).⁹ The U.S. Bureau of Labor Statistics (BLS) estimates that employers will need to replace 331,000 RNs who are forecast to retire between 1998 and 2008, with the majority of those retirements likely to occur toward the end of the period when baby-boomers will be between 45 and 62 years old. Of the 794,000 total job openings projected for RNs through 2008, almost 42% could arise from the need to replace retirees.¹⁰

The Supply of Registered Nurses

It usually is thought to be more difficult to estimate occupational labor supply than demand. The number of entrants to the RN workforce can be discerned, in part, by looking at data on graduates from programs that offer nursing degrees. The supply of new workers to nursing can be estimated more easily than the supply to many other occupations where college major is less determinative of the field into which the student will go or where no formal education or training beyond high school typically is required. By focusing on graduations alone, however, the supply of new RNs could well be understated because the availability of nurses from abroad — who can enter the country permanently or as temporary workers¹¹ — would be omitted. In order to develop the best possible estimate of the prospective total supply of labor to RN jobs, “leavers” (i.e., RNs who take jobs in other occupations or who exit the labor force for such reasons as retirement or disability) also must be taken into account.

⁸(...continued)

Review, November 1999. (Hereafter cited as Braddock, *Occupational Employment Projections*.)

⁹Dohm, Arlene. Gauging the Labor Force Effects of Retiring Baby-Boomers. *Monthly Labor Review*, July 2000.

¹⁰*Ibid.*, and Braddock, *Occupational Employment Projections*.

¹¹Foreign nurse graduates can enter the country on a permanent basis either as relatives of U.S. citizens or legal permanent residents, or as employment-based immigrants. They also can enter as temporary workers by obtaining an H-1C visa (CRS Report RS20164, *Immigration: Temporary Admission of Nurses for Health Shortage Areas (P.L. 106-95)*, by Joyce Violet) or an H-1B visa if they have a bachelor’s degree, or if they are from Mexico or Canada, by applying for Trade NAFTA (North American Free Trade Agreement) status.

The Trend in Graduates from Nursing Degree Programs

As shown in **Table 2**, the number of graduates from programs that prepare students for RN licensure (i.e., diploma, associate and baccalaureate) has waxed and waned in recent decades. The 10% increase in graduates between the 1975-1976 and 1997-1998 academic years was marked by 10 years of absolute decreases, with 3 of those years in the most recent period for which data are available.

Table 2. Graduates from Nursing Degree Programs, 1976-1998

Academic year	Number	Annual percent change
1975-1976	77,065	—
1976-1977	77,755	0.90
1977-1978	77,874	0.15
1978-1979	77,132	-0.95
1979-1980	75,523	-2.09
1980-1981	73,985	-2.04
1981-1982	74,052	0.09
1982-1983	77,408	4.53
1983-1984	80,312	3.75
1984-1985	82,075	2.20
1985-1986	77,027	-6.15
1986-1987	70,561	-8.39
1987-1988	64,839	-8.11
1988-1989	61,660	-4.90
1989-1990	66,088	7.18
1990-1991	72,230	9.29
1991-1992	80,839	11.92
1992-1993	88,149	9.04
1993-1994	94,870	7.62
1994-1995	97,052	2.30
1995-1996	94,757	-2.36
1996-1997	91,421	-3.52
1997-1998	84,847	-7.19

Source: Data provided by the National League for Nursing through 1995-1996 may be found in Health Resources and Services Administration, Bureau of Health Professions, National Center for Health Workforce Information and Analysis. *United States Health Workforce Personnel Factbook*. Available at [<http://www.bhpr.hrsa.gov/healthworkforce/factbook.htm>]. Data for 1996-1997 and 1997-1998 are unofficial, unpublished data from the National League for Nursing.

According to a projection made by the Division of Nursing of the Health Resources and Services Administration, U.S. Department of Health and Human Services, graduations from basic nursing education programs will increase to a somewhat greater degree between 1998 and 2020 (13%) than between 1976 and 1998 (10%). (See **Tables 2 and 3.**) The projection took into account such factors as historical graduation data through the early 1990s, the proportion of the female high school graduates that have been enrolling in schools of higher education and the availability and attractiveness of nursing as a career (i.e., measures of job openings, salaries and health expenditures).

Table 3. Projected Number of Graduates from Basic Nursing Education Programs, 1998-2020

Academic year	Number	Annual percent change
1997-1998	78,132	—
1998-1999	77,702	-0.55
1999-2000	79,664	2.53
2000-2001	80,622	1.20
2001-2002	81,009	0.48
2002-2003	80,067	-1.16
2003-2004	80,950	1.10
2004-2005	84,160	3.97
2005-2006	85,005	1.00
2006-2007	85,051	0.05
2007-2008	82,589	-2.89
2008-2009	83,951	1.65
2009-2010	88,304	5.19
2010-2011	89,372	1.21
2011-2012	89,183	-0.21
2012-2013	83,957	-5.86
2013-2014	85,510	1.85
2014-2015	90,042	5.30
2015-2016	90,395	0.39

Academic year	Number	Annual percent change
2016-2017	89,126	-1.40
2017-2018	79,413	-10.90
2018-2019	81,133	2.17
2019-2020	88,065	8.54

Source: National Advisory Council on Nurse Education and Practice. *Report to the Secretary of the Department of Health and Human Services on the Basic Registered Nurse Workforce*. Health Resources and Services Administration, Bureau of Health Professions, Division of Nursing, 1996.

The Total Supply of RNs

The Division of Nursing built on its projected supply of graduates from basic nursing education programs to develop a projection of the total supply of RNs. It was produced by looking at such things as the historical trend in the proportion of the RN population that is employed in nursing, economic and social forces evident in the early 1990s that were expected to influence RN employment (e.g., changes in women's employment rate and in nurses' salaries) and information on foreign graduate first-time licensees. In addition, estimates of leavers were derived by taking into consideration such things as trends in deaths among white women and in retirement across all types of workers. The Division of Nursing expects to release new supply-demand projections for RNs, based on more recent data, in summer 2001.

Although the total supply of RNs is projected to almost steadily increase through 2020, it is expected to do so at a diminishing rate. (See **Table 4**.) The falloff in the growth rate could be particularly steep between 2005 and 2008, when an especially large number of baby-boom RNs (i.e., those born between 1948 and 1959) will start reaching 55 years of age — an age “at which RNs have historically begun to reduce their labor participation.”¹² Another sharp reduction in the growth rate is anticipated between 2012 and 2013, when this large subset of baby boomers will reach what typically are the waning years of a person's working life.

¹²Minnick, Ann F. Retirement, the Nursing Workforce, and the Year 2005. *Nursing Outlook*, September/October 2000. p. 211.

Table 4. Projected Supply of Registered Nurses, 1998-2020

Year (as of December 31)	Number	Annual percent change
1998	2,221,000	—
1999	2,256,000	1.58
2000	2,290,000	1.51
2001	2,321,000	1.35
2002	2,354,000	1.42
2003	2,386,000	1.36
2004	2,417,000	1.30
2005	2,448,000	1.28
2006	2,473,000	1.02
2007	2,496,000	0.93
2008	2,514,000	0.72
2009	2,531,000	0.68
2010	2,551,000	0.79
2011	2,573,000	0.86
2012	2,591,000	0.70
2013	2,600,000	0.35
2014	2,609,000	0.35
2015	2,620,000	0.42
2016	2,628,000	0.31
2017	2,634,000	0.23
2018	2,629,000	-0.19
2019	2,627,000	-0.08
2020	2,631,000	0.15

Source: National Advisory Council on Nurse Education and Practice. *Report to the Secretary of the Department of Health and Human Services on the Basic Registered Nurse Workforce*. Health Resources and Services Administration, Bureau of Health Professions, Division of Nursing, 1996.

A Shortfall of Registered Nurses?

As discussed below, the latest estimates from which supply and demand conditions in the labor market for RNs may be observed point to a looming national shortage unless pre-emptive actions are taken. In contrast, reports that nurses currently are in short supply generally are anecdotal, or they relate to a specific kind of nurse (e.g., experienced nurses with specific skills as opposed to newly licensed RNs) or specific geographic areas which suggest a maldistribution of labor rather than a shortage *per se*.¹³

Projected Labor Market Conditions for RNs

A sense of future conditions in the RN labor market can be gleaned from a comparison of the BLS demand projections and the Division of Nursing's supply projections. As shown in **Table 5**, the estimated supply of RNs in 1998 exceeded the number actually employed in that year by 142,190. Absent intervening actions, it is not until some time late in the current decade that a shortage might occur: the supply of RNs in 2008 is projected to fall just shy of demand, by 15,674 persons. The gap could actually be slightly wider if the BLS and the Division of Nursing used the same definition for RNs. The BLS categorizes RNs who principally are teachers or managers in those non-nursing occupations; the Division of Nursing categorizes all persons who have a nursing license as RNs. Nonetheless, the difference is so small that some might regard it as indicating a balance of supply and demand.

Table 5. The First Comparison of Projected Supply and Demand in the RN Labor Market

Year	Supply of RNs ^a	Demand for RNs ^b
1998	2,221,000	2,078,810
2008	2,514,000	2,529,674

Source: Supply data from **Table 4** and demand data from **Table 1**.

^aThe supply figures for 1998 and 2008 are projections.

^bThe demand figure for 1998 is actual employment of RNs. Employment in 2008 is a projection.

A very similar situation is revealed by comparing the Division of Nursing's supply and demand projections for RNs, despite the aforementioned difference in RN definition, the fact that the Division's demand estimate uses a different methodology than that employed by BLS¹⁴ and the fact that it is based on statistics from the early

¹³See, for example, The Center for Health Workforce Studies, School of Public Health, University at Albany. *Meeting Future Nursing Needs of New Yorkers: The Role of the State University of New York*. Rensselaer, NY, October 2000.

¹⁴For example, the Division of Nursing's demand model develops forecasts for each state that
(continued...)

1990s while BLS' employment projection is based on data from later in the decade. As shown in **Table 6**, an extremely slight shortfall of RNs is projected to occur in 2009. The imbalance is expected to worsen through 2020, assuming ameliorative actions are not taken, when the demand for RNs could be 13% greater than the supply.

Much the same results emerge from an analysis that developed an alternative projection of the RN labor supply and compared it to the Division of Nursing's demand projection. The researchers obtained data from the Census Bureau's Current Population Survey on employment trends of RNs over their worklives to project the number of full-time equivalent RNs by single year of age between 2000 and 2020. In addition, they gathered information on college freshmen's career plans from a survey by the Higher Education Research Institute, University of California-Los Angeles. The researchers estimated that the absolute number of RNs could begin to contract in 2012 because the smaller groups of women that have followed the baby-boom women into the labor force have had a wider range of job opportunities open to them and consequently, have been less prone to choose a career in nursing.¹⁵ Not only could the decreased likelihood of young women becoming RNs reduce the total supply of labor to the occupation, but the analysts also found that it could well result in the RN workforce aging more rapidly than other occupations. The authors compared their supply projections with the Division of Nursing's demand projections and concluded that a shortage could develop about when the oldest members of the baby-boom generation begin retiring from the labor force and enrolling in the Medicare program. By 2020, once again assuming no pre-emptive steps by employers or the government, the demand for RNs could exceed the supply by 20%.¹⁶

¹⁴(...continued)

are then aggregated to yield a national projection while the BLS model makes employment projections for the United States as a whole.

¹⁵Stager, Douglas O., with David I. Auerbach and Peter I. Buerhaus. Expanding Career Opportunities for Women and the Declining Interest in Nursing as a Career. *Nursing Economics*, September-October 2000, v. 18, no. 5. For example, women who graduated from high school in the 1990s were estimated to be 30-40% less likely to enter the nursing profession than those who graduated 20 years earlier. Other female-dominated occupations have witnessed a similar decline in interest (e.g., elementary school teachers). Conversely, women have shown an increased interest in traditionally male-dominated occupations (e.g., doctors or dentists).

¹⁶Buerhaus, Peter I., with Douglas O. Staiger and David I. Auerbach. Implications of an Aging Registered Nurse Workforce. *Journal of the American Medical Association*, June 14, 2000, v. 283, no. 22. (Hereafter cited as Buerhaus, Staiger and Auerbach, *Implications of an Aging Registered Nurse Workforce*.)

Table 6. The Second Comparison of Projected Supply and Demand in the RN Labor Market

Year (as of December 31)	Supply of full-time equivalent RNs ^a	Demand for full-time equivalent RNs ^a
1998	1,926,000	1,915,000
1999	1,957,000	1,943,000
2000	1,987,000	1,969,000
2001	2,014,000	1,999,000
2002	2,045,000	2,024,000
2003	2,075,000	2,048,000
2004	2,103,000	2,071,000
2005	2,128,000	2,095,000
2006	2,150,000	2,122,000
2007	2,169,000	2,148,000
2008	2,185,000	2,174,000
2009	2,197,000	2,202,000
2010	2,214,000	2,232,000
2011	2,232,000	2,262,000
2012	2,247,000	2,292,000
2013	2,256,000	2,322,000
2014	2,266,000	2,355,000
2015	2,277,000	2,391,000
2016	2,285,000	2,423,000
2017	2,290,000	2,459,000
2018	2,284,000	2,493,000
2019	2,281,000	2,532,000
2020	2,284,000	2,575,000

Source: National Advisory Council on Nurse Education and Practice. *Report to the Secretary of the Department of Health and Human Services on the Basic Registered Nurse Workforce*. Health Resources and Services Administration, Bureau of Health Professions, Division of Nursing, 1996.

^a The full-time equivalent for part-time workers was calculated by applying the ratio of average scheduled hours of part-timers to average scheduled hours of full-timers.

Current Labor Market Conditions for RNs

Given the absence of a direct measure of occupational labor shortages, analysts use a variety of indicators. The unemployment rate is perhaps the “best-known example of such an indicator,” but relying on just one indicator “can still lead to an incorrect conclusion” about the existence of a labor shortage.¹⁷ Other often used, regularly collected indicators include the trend in wages and in employment.

The Unemployment Rate. As shown in **Table 7**, the proportion of experienced RNs without jobs has been very low for quite some time. The jobless rate also has remained below the rate for all professional workers, the larger occupational group in which RNs are classified. However, the gap between the unemployment rate of RNs and professionals was almost twice as wide in 2000 as in 1989, the last pre-recession peak and the last time there was concern about a nursing shortage. This suggests that employers trying to hire nurses today may be encountering more than the usual degree of labor scarcity consistent with a prolonged period of economic growth and an even tighter labor market than gave rise to earlier actions to remedy a perceived shortage of RNs.

¹⁷Cohen, Malcolm S. *Labor Shortages as America Approaches the Twenty-first Century*. Ann Arbor, MI, University of Michigan Press, 1995. p. 25. (Hereafter cited as Cohen, *Labor Shortages as America Approaches the Twenty-first Century*.)

Table 7. Employment, the Unemployment Rate and Median Weekly Earnings of Registered Nurses and of Professionals Overall, 1989-2000

Year	Total employment (in thousands)		Experienced unemployment rate ^a		Median weekly earnings ^b	
	RNs	All professionals	RNs	All professionals	RNs	All professionals
1989	1,599	15,550	1.3	1.7	569	586
1990	1,667	15,800	1.1	2.0	608	610
1991	1,704	16,030	1.2	2.4	635	633
1992	1,799	16,370	1.1	2.6	662	658
1993	1,855	16,893	1.3	2.6	687	680
1994	1,956	17,536	1.5	2.5	682	705
1995	1,977	18,132	1.5	2.5	695	718
1996	1,986	18,752	1.4	2.3	697	730
1997	2,065	19,245	1.5	2.1	710	750
1998	2,032	19,883	1.3	1.9	739	763
1999	2,128	20,883	1.1	1.9	750	800
2000	2,111	21,113	1.0	1.7	790	832

Source: U.S. Bureau of Labor Statistics. *Employment and Earnings*, January issues of various years, and unpublished data from the Current Population Survey which queries households.

^a The experienced unemployment rate covers persons who had jobs as RNs immediately before their spell of unemployment, that is, it excludes new entrants and re-entrants to the RN labor force. The employment and unemployment rate series cover all employed persons.

^b Median weekly earnings cover wage and salary workers employed full-time. Somewhat more employed RNs work part-time (28%) compared to all professional workers (21%) according to Division of Nursing and BLS data, respectively.

At that time, the situation

prompted passage of the Nursing Shortage Reduction and Education Extension Act and implementation of the Immigration Nursing Relief Act of 1989. Soon after reports of shortages, however, the overall economic picture began to change. The hospital industry responded by increasing overtime work, retention and recruitment efforts, and nursing wages [as well as restructuring work to utilize nursing aides and licensed practical nurses, among others, in lieu of RNs].¹⁸

These measures succeeded in increasing the supply of RNs by, among other things, enticing more students to enter the field. As shown in **Table 2**, the number of graduates from nursing degree programs climbed sharply during the early 1990s. In addition, the share of RNs who maintained their licenses but were not employed in nursing dropped from 20.0% in 1988 to 17.3% in 1992, which suggests that these measures prompted some RNs to return to the occupation.¹⁹ Consequently, reports of a nursing shortage petered out early in the decade.

Wage Increases. If occupational demand is nearing or surpassing supply, economic theory suggests that employers will bid up wages to attract workers and thereby restore balance to the labor market. “Thus, rapidly rising wages are consistent with a labor shortage.”²⁰ Between 1989 and 1993, wages increased more among RNs (20.7%) than across all professional employees (16.0%). (See **Table 7**) The pattern reversed thereafter, due in part to the development and spread of managed care (i.e., an arrangement used to control the use, and hence, the cost of health services provided to enrollees in many health plans).²¹

The relatively slower wage growth among RNs since mid-decade could account for the decreased number of graduates from nursing degree programs (see **Table 2**). It also could account for the increased share of RNs not employed in nursing: RNs who were not employed in nursing rose from 17.3% in 1992 and 1996, to 18.3% in 2000.²² Although nurses’ wages did rise at an above-average rate in 2 recent years

¹⁸Veneri, Carolyn M. Can Occupational Labor Market Shortages be Identified Using Available Data? *Monthly Labor Review*, March 1999. p. 17 and 20.

¹⁹HRSA, *National Sample Survey of Registered Nurses*.

²⁰Cohen, *Labor Shortages as America Approaches the Twenty-first Century*, p. 33.

²¹Buerhaus, Peter I. and Douglas O. Staiger. Trouble in the Nurse Labor Market? Recent Trends and Future Outlook. *Health Affairs*, January/February 1999, v. 18, no. 1. (Hereafter cited as Buerhaus and Staiger, *Trouble in the Nurse Labor Market?*)

²²HRSA, *National Sample Survey of Registered Nurses*.

(1998 and 2000),²³ employers have thus far raised RNs' wages to a lesser extent than they did during the last alleged shortage.

The efficacy of higher wages at increasing the supply of already employed RNs, as measured by their number of work hours, is open to question. According to a survey that was administered to nurses who became licensed in New York State in 1999, 40% said they would be willing to work more hours if offered a higher salary. Another 44% indicated that there were factors other than higher salaries that would motivate them to put in longer hours (i.e., flexible hours, speciality of choice, different shift or hours and other conditions), while 16.0% stated that they would not be willing to do so under any conditions.²⁴ The objection of nurse advocates to hospitals' current use of mandatory overtime to cope with a dearth of staff may reflect the unwillingness of arguably overburdened RNs to work more hours or to continue in nursing under the present state of working conditions, in part because fatigue might compromise the quality of care being rendered.²⁵

Employment Growth. If an occupational shortage exists, comparatively fast-paced employment increases are expected as well. Between 1989 and 1994, job growth among RNs occurred much more rapidly than among professionals in general (22.3% and 12.8%, respectively). (See **Table 7**) Since then, however, the relative trend in employment is not consistent with the presence of a shortage: between 1995 and 2000, employment of RNs grew by 6.8% compared to 16.4% for all professionals.

The slowdown in job growth among RNs in the last several years appears to be at least partly related to the spread of managed care across the nation. The diminished rate of RN employment growth has been concentrated in hospitals,

²³The size of reported wage increases can vary greatly depending on such things as the definition of the occupation, how well the sample reflects the population from which it was drawn, the relative size of the sample and the rate of response to the survey. Based on data for hundreds of occupations that were culled from the Current Population Survey, which queries about 60,000 households each month and is conducted by the Census Bureau, the BLS reported an increase of 5.3% between 1999 and 2000 in the median weekly earnings of full-time wage and salary workers employed as RNs. In contrast, a health care staffing and consulting firm reported an 11.4% gain in nurses' average annual salary in 2000. (Health Workforce: In 2000, Average Salaries for Nurses Rose 11 Percent, Healthcare Consulting Firm Says. *Health Care Daily*, April 30, 2001.)

²⁴Salsberg, Edward S. *State Nursing Shortage Issues: New York*. Presentation at conference, Hard Numbers, Hard Choices: A Report on the Nation's Nursing Workforce, held February 14, 2001 in Washington, D.C.

²⁵See, for example: Aiken, Linda H., with Sean P. Clarke, Douglas M. Sloane, Julie A. Sochalski, Reinhard Busse, Heather Clark, Phyllis Giovannetti, Jennifer Hunt, Anne Marie Rafferty and Judith Shamian. Nurses' Reports on Hospital Care in Five Countries. *Health Affairs*, May/June 2001; American Nurses Association. *Nurses Concerned Over Working Conditions, Decline in Quality of Care, ANA Survey Reveals*. Press Release, February 6, 2001. Copy of the press release and survey are available at: [<http://www.nursingworld.org>]; and Federation of Nurses and Health Professionals. *The Nurse Shortage: Perspectives from Current Direct Care Nurses and Former Direct Care Nurses*. April 2001.

although there are indications that the RN job creation rate in the home health industry has decreased as well. “Medicare’s implementation of a prospective payment system for the home health care industry ... place[s] new economic pressure on providers and reinforces the slowing effect of managed care.”²⁶

As previously mentioned, accounts of the current scarcity of RNs largely relate to certain specialties (e.g., those capable of staffing hospital emergency rooms) and to certain parts of the country. For example, the Division of Nursing’s projections for 2000 anticipated a perfect match between RN supply and demand in one region (the Middle Atlantic) and a shortage in three other of the nation’s nine regions (New England, South Atlantic and Pacific).²⁷ In addition, certain health care facilities (e.g., nursing homes) may be experiencing more difficulty than others in attracting adequate staff in part resulting from differences in the salaries offered to RNs.²⁸ Data at the national level, for all kinds of RNs and for all types of health care workplaces are not sufficiently sensitive to identify a maldistribution, as opposed to a pervasive shortage, of RNs. These kind of maldistributions could remain “spot” shortages or be harbingers of a more widespread nursing shortage to come.

Concluding Remarks

It cannot be stated conclusively, based upon the available labor market indicators, that an across-the-board shortage of RNs currently exists. There is more convincing evidence pointing toward supply in the RN labor market failing to meet demand beginning sometime around 2010, unless ameliorative actions are undertaken.

The impending nationwide shortage is likely to differ from those of the past as it seemingly will be driven by supply-side demographics that may not be easily or quickly undone.²⁹ Employers can be expected to try to correct the developing supply-demand imbalance in the RN labor market by further increasing nurses’ wages, assigning some duties now performed by RNs to paraprofessional nursing personnel and utilizing additional productivity-enhancing technology. These remedies were used successfully in the past when RNs were scarce relative to demand, but the earlier situations were not marked by an aging RN labor force with the attendant need to replace many retiring nurses at about the same time older baby-boomers will make

²⁶Buerhaus and Staiger, *Trouble in the Nurse Labor Market?* p. 221.

²⁷National Advisory Council on Nurse Education and Practice. *Report to the Secretary of the Department of Health and Human Services on the Basic Registered Nurse Workforce*. Health Resources and Services Administration, Bureau of Health Professions, Division of Nursing, 1996.

²⁸For more information see: American Health Care Association. *Staffing of Nursing Services in Long Term Care: Present Issues and Prospects for the Future*. February 2001. Available at: [<http://www.acha.org/news/staff-02-2001.htm>].

²⁹While the portended shortage is expected to be driven by supply factors, the tight labor market for nurses in the late 1980s/early 1990s, for example, was spurred by heightened demand. Aiken, Linda H. The Hospital Nursing Shortage: A Paradox of Increasing Supply and Increasing Vacancy Rates. *The Western Journal of Medicine*, July 1989, v. 151, no. 1.

greater demands on the nation's health care delivery system.³⁰ While raising relative wages, improving working conditions, upgrading the occupation's image and lowering education costs to promote recruitment may encourage more students to become RNs, these changes could take some time to make themselves felt and their effects could be dampened by the alternative career paths now open to women. Another means of bringing more workers into the field is through immigration.³¹ However, "eliminating the shortage would require immigration on an unprecedented scale,"³² and as happened when the 105th and 106th Congresses increased the number of H-1B visas for professional/specialty workers, the policy could prove to be a controversial one.

³⁰American Organization of Nurse Executives. *Perspectives on the Nursing Shortage: A Blueprint for Action*. October 2000. Available at: [<http://www.aone.org>].

³¹According to the latest available data from the Immigration and Naturalization Service (INS), there were 2,500 RNs admitted to the United States in 1998 as legal permanent residents under either the family-based or employment-based categories. The INS estimates that 10,000 Canadians are now working temporarily in the United States as RNs on Trade NAFTA visas. Although foreign nursing graduates also may recently have entered the country as temporary workers on H-1B (professional/specialty occupation) visas, their numbers are likely to be relatively small because employers have largely been bringing in information technology workers in the visa category. (The number of H-1B visas issued in FY2000 hit the cap of 115,000. The 106th Congress raised the visa limit to 195,000 annually between FY2001 and FY2003.) In addition, the H-1C visa program allows only 500 nonimmigrant nurses to enter the country each year to work temporarily in health professional shortage areas.

³²Buerhaus, Staiger and Auerbach, *Implications of an Aging Registered Nurse Workforce*, p. 2953. The authors noted in Policy Responses to an Aging Registered Nurse Workforce, *Nursing Economics*, November/December 2000, v. 18, no. 6, that by 2020 the supply of full-time equivalent RNs could be 400,000 fewer than needed to meet employer demand.