

The Recent Surge In Nurse Employment: Causes And Implications

Recession effects that have eased the shortage of hospital nurses must be viewed as temporary, lest they distract policymakers from continuing to address longer-term indicators.

by Peter I. Buerhaus, David I. Auerbach, and Douglas O. Staiger

ABSTRACT: Registered nurse (RN) employment has increased during the current recession, and we may soon see an end to the decade-long nurse shortage. This would give hospitals welcome relief and an opportunity to strengthen the nurse workforce by addressing issues associated with an increasingly older and foreign-born workforce. The recent increase in employment is also improving projections of the future supply of RNs, yet large shortages are still expected in the next decade. Until nursing education capacity is increased, future imbalances in the nurse labor market will be unavoidable. [*Health Affairs* 28, no. 4 (2009): w657–w668 (published online 12 June 2009; 10.1377/hlthaff.28.4.w657)]

SINCE 1998, HOSPITALS IN THE UNITED STATES have reported a shortage of registered nurses (RNs). The shortage peaked in 2001, when hospital nurse vacancy rates reached a national average of 13 percent and an estimated 126,000 full-time-equivalent (FTE) RN positions were unfilled, forcing many hospitals to close nursing units and restrict operations.¹ Throughout the current decade, concerns about the nurse workforce increased, driven in part by increasing evidence that low hospital nurse staffing was associated with an increased risk of patient complications, and in part by projections of a large shortage of RNs developing over the next decade.²

The nation has experienced two recessions since the current nurse shortage developed more than ten years ago. The first recession, in 2001, lasted eight months, and resulted in the average national unemployment rate peaking at 6.3 percent.

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 Peter Buerhaus (peter.buerhaus@vanderbilt.edu) is the Valere Potter Professor of Nursing at Vanderbilt University School of Nursing, and director of the Center for Interdisciplinary Health Workforce Studies, Institute for Medicine and Public Health, at Vanderbilt University in Nashville, Tennessee. David Auerbach is a principal analyst, Health and Human Resources, at the Congressional Budget Office in Washington, D.C. Douglas Staiger is the John French Professor in Economics at Dartmouth College in Hanover, New Hampshire, and a research associate with the National Bureau of Economic Research in Cambridge, Massachusetts.

The second recession began in December 2007 and by January 2009 had already lasted longer than the average (ten months) of all previous recessions since World War II.³ During the last four months of 2008, 1.9 million people lost their jobs, which increased the total to 2.5 million since the beginning of the recession and drove up the unemployment rate to 7.2 percent in December 2008.⁴ Although job losses and the unemployment rate have continued to increase since then, the health care sector has actually added jobs.⁵

In this paper we examine the recession's impact on current RN employment and on projections of the future size of the nurse workforce. Clarifying the effect of the recession on RN employment can help employers and policymakers anticipate the possibility that the long-standing nurse shortage is finally winding down. But before concluding that it is safe to turn attention away from the nurse workforce, we examine trends in the composition of the RN workforce that lie underneath the recent employment changes. This assessment suggests the need to strengthen the current workforce before the recession lifts and imbalances in the supply and demand for RNs reappear. Next, we focus on the future workforce and project the age and supply of RNs through 2025, noting the impact of the recession on these projections. We conclude with policy implications to support the current nurse workforce and remove barriers that are blocking efforts to expand the long-term supply of RNs.

Study Data And Methods

■ **Data.** We used data from 1973 through 2008 from the Current Population Surveys (CPS) annual May surveys for 1973–1978 and the Outgoing Rotation Group Annual Merged Files for 1979–2008. The CPS is a household-based, nationally representative survey of more than 100,000 people, administered monthly by the U.S. Census Bureau. It is used extensively by the U.S. Department of Labor to estimate current trends in unemployment, employment, and earnings; also, we have used CPS data in our prior work to estimate employment trends for RNs and project the age and supply of RNs.⁶ The CPS data contain information on demographics, earnings, hours worked, industry sector, and employment of more than 3,000 RNs employed in nursing each year.

The data we analyzed included individuals between ages 23–64 who reported their occupation as RN between January 1973 and December 2008 (N = 94,395). For consistency with prior work, we assigned RNs reporting fewer than thirty hours worked in a typical week as one-half FTE. To make estimates representative of the U.S. noninstitutionalized population, we weighted observations by sampling weights provided by the CPS.

■ **Methods.** Details of our forecasting model are described elsewhere.⁷ Briefly, the model used a regression analysis where the dependent variable was the logarithm of the number of FTEs produced by RNs of every age in the 23–64 age group, for every year between 1973 and 2008 (for example, 42 years of age times 36 years

equals 1,512 total observations), divided by the total U.S. population in that given year-age cell. The independent variables were dummy variables for each single-year birth cohort (for example, RNs born in 1955), each single year of age, and an interaction term that captured the shift toward older ages of first entry into the workforce by cohorts born after 1965. After being estimated on observed data, the forecast model applied the observed pattern of workforce participation by age to future cohorts and assumed that future cohorts would have the same propensity to become RNs as the five most recently observed cohorts.

Study Results

■ **Impact of the recession on RN employment.** Exhibit 1 provides data on boom and bust periods in the economy since 1980, along with changes in FTE RN employment. During boom periods the economy grew faster, as reflected by the higher real growth in gross domestic product (GDP) (3.7 percent versus 1.6 percent in bust years) and lower average unemployment rates (5.5 percent versus 6.6 percent in bust years). Strikingly, during the lower-GDP-growth bust periods, average annual FTE RN employment increased faster than in boom years, particularly in hospitals, where employment increased at more than five times the annual rate (5.3 percent) of that during the boom years (1.0 percent). This result may seem counterintuitive, but it reflects the impact of real or anticipated losses of household income as many RNs' spouses either lost their jobs or feared that they might during the bust

EXHIBIT 1

Annual Growth In Real Gross Domestic Product (GDP), National Unemployment Rates, And Annual Growth In Full-Time-Equivalent (FTE) Registered Nurse (RN) Employment, In Boom And Bust Periods, United States, 1981–2008

Years	Economic indicator		Annual growth in FTE RN employment	
	Annual growth in real GDP (%)	National unemployment rate (%)	All RNs (%)	Hospital RNs (%)
<u>1981–1983</u>	<u>1.7</u>	<u>8.4</u>	<u>1.6</u>	<u>3.5</u>
1984–1990	3.9	6.2	3.0	2.4
<u>1991–1992</u>	<u>1.6</u>	<u>7.1</u>	<u>3.4</u>	<u>5.0</u>
1993–2000	3.7	5.1	2.3	0.5
<u>2001–2003</u>	<u>1.6</u>	<u>5.5</u>	<u>4.9</u>	<u>5.0</u>
2004–2006	3.2	5.1	0.7	-0.9
<u>2007–2008</u>	<u>1.7</u>	<u>5.3</u>	<u>4.9</u>	<u>8.6</u>
Bust average	<u>1.6</u>	<u>6.6</u>	<u>3.6</u>	<u>5.3</u>
Boom average	3.7	5.5	2.3	1.0

SOURCE: Authors' calculations of data from the Current Population Surveys, 1980–2008, supplemented with data from the Bureau of Labor Statistics.

NOTE: Each entry represents the average over all years in the indicated range.

years, when unemployment rates were increasing (70 percent of RNs are married). This decrease in spousal income would stimulate an increase in RNs' participation in the labor market by some of those not working and an increase in hours worked by those already participating in the labor market.⁸ These responses are shown by the increase in total and hospital FTE RN employment during bust periods relative to boom periods (the bottom two rows of Exhibit 1).

Exhibit 1 also shows that these countercyclical trends appear more extreme in recent years. For example, with each succeeding boom period, RN employment grew more slowly, and negative growth was observed in hospitals during 2003–2006. Conversely, with each successive bust period, RN employment grew more rapidly. During 2002 and 2003, hospital RN employment increased by 184,000 FTE RNs; in 2007 and 2008, it increased by an estimated 243,000 FTEs (18 percent)—the largest two-year increase in our data set.⁹ This stunning increase in hospital RN employment (employment in other settings did not grow in 2008) increased the proportion of all FTE RNs employed in hospitals to 64 percent in 2008 from 60 percent in 2006. The apparent preference for hospital-based employment likely reflects a combination of higher average earnings compared with nonhospital settings (\$27.60 per hour versus \$24.63 in 2008), more-generous fringe benefits (particularly health insurance), favorable work hours (twelve-hour shifts commonly offered by hospitals enable an RN to work three days per week, receive full-time benefits, and still have ample time to work overtime hours or a second job), and RN layoffs among nonhospital providers associated with the recession-induced decreases in revenue.

■ **Changing composition of the RN workforce.** Although the recent flows into and out of the labor market can be largely accounted for by economic booms and busts, this analysis does not reveal information about the demographic composition of the RNs in the labor market. Further examination not only shows how nursing is changing but suggests issues that employers and policymakers may need to address.

Most of the employment increase in recent years is from RNs over age fifty, some of which reflects large cohorts of baby-boomer RNs aging into their fifties (Exhibit 2). Between 2001 and 2008, employment of older RNs increased by an estimated 368,000 FTEs, or 77 percent of the total increase in RN employment. Although hospitals employed more older RNs (230,000, or 59 percent of the total growth in hospital employment) compared to nonhospital settings (138,000) over this period, older RNs account for essentially all of the growth in RN employment in nonhospital settings. In contrast, during these same years the net employment growth of middle-aged RNs (ages 35–49) was negative, with the estimated decrease in nonhospital settings (–55,000) overwhelming the increase in hospital employment (31,000).

Younger RNs in the workforce (under age thirty-five) account for 28 percent of the total increase in RN employment (33 percent of the growth of hospital RN employment and only 6 percent of the growth in nonhospital settings). A closer ex-

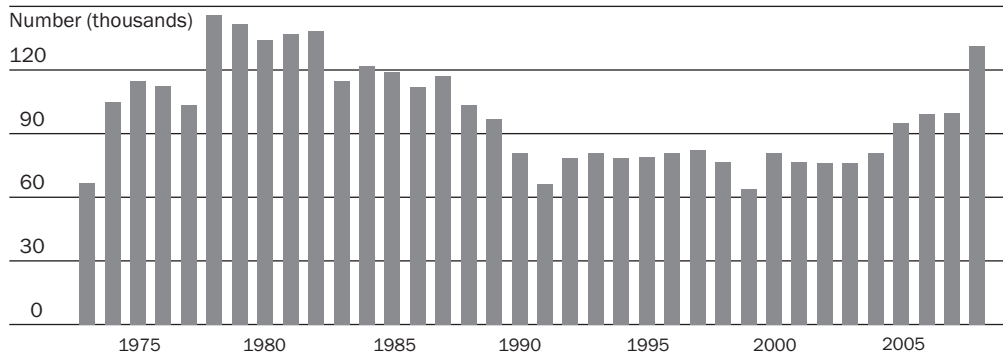
EXHIBIT 2
Growth In Employment Of Full-Time-Equivalent (FTE) Registered Nurses (RNs), By
Major Employment Sector, Age, And U.S.- And Foreign-Born Status, 2001–2008

Employment setting, age, and U.S.- and foreign-born status	Employment growth among FTE RNs, 2001–2008
Total growth	476,000
Age (years)	
Hospital	387,000
Under 35	126,000
35–49	31,000
50–64	230,000
Nonhospital	89,000
Under 35	5,700
35–49	-55,000
50–64	138,000
U.S.-born	321,000
Hospital	268,000
Nonhospital	53,000
Foreign-born	155,000
Hospital	119,000
Nonhospital	35,500

SOURCE: Authors' calculations of data from the Current Population Surveys, 1973–2008.

amination of this age group shows at least two components of this increase. First, the total number of RNs ages 23–25 surged to a level in 2008 (130,000) not seen in more than two decades, suggesting that nursing may be an increasingly attractive career option for young women (Exhibit 3). Second, there was a large increase (about one-third over the level in 2007) in 2008 in the number of FTEs contributed by RNs ages 21–34 with children under age six (data not shown). That ap-

EXHIBIT 3
Number Of Full-Time-Equivalent (FTE) Registered Nurses (RNs) Ages 23–25,
1973–2008



SOURCE: Authors' calculations of data from the Current Population Surveys, 1973–2008.

pears to be a recession-related phenomenon, as mentioned earlier. Overall, most of the increased employment of younger RNs (under age thirty-five) from 2001 to 2008 occurred during 2006–08, particularly in 2008, when employment among this group increased by 74,000.

The second trend shaping the composition of the workforce is the increased employment of foreign-born RNs. Because the CPS asks respondents to identify country of birth, we use “foreign-born” rather than “foreign” or “internationally” educated to describe the growth of such RNs in Exhibit 2.¹⁰ In 1994, 9 percent of the total RN workforce was composed of foreign-born RNs, but by 2008, this percentage had increased to 16.3 percent (or an estimated 400,000 FTE RNs, using CPS data). Of those 400,000, roughly 10 percent indicated that they had immigrated to the United States within the previous five years.

The increasing proportion of foreign-born RNs is particularly noticeable in this decade: from 2001 to 2008, the total FTE RN workforce increased by 476,000, and fully one-third (155,000 RNs) of this increase was supplied by foreign-born RNs. In 2008 alone, the number of foreign-born FTE RNs increased by a record 48,000. Three times as many foreign-born RNs worked on FTE status in hospitals (approximately 119,000) compared to nonhospital settings (35,000). The increasing proportions of older and foreign-born RNs in recent years provide a more complete picture of how the nurse workforce is changing, suggesting that employers and policymakers will be dealing with these trends for many years.

■ **Long-term changes in the workforce.** Since 2000 we have published projections of the future age and supply of RNs. As noted earlier, our projection model uses RN data from the CPS to estimate cohort, age, and population effects to yield information needed to generate projections. As new information about the nurse workforce becomes available, such as changes in employment or an increase in numbers of younger RNs entering the workforce, we have reestimated the model using the most recent data available. This has allowed an ongoing assessment of whether progress is being made in increasing the long-term supply of nurses. We and other workforce analysts have consistently projected a large shortage of RNs in the coming decade, but there is much variation in the timing and size of the projected shortage as a result of differences in assumptions, methods, models, and data sources.¹¹

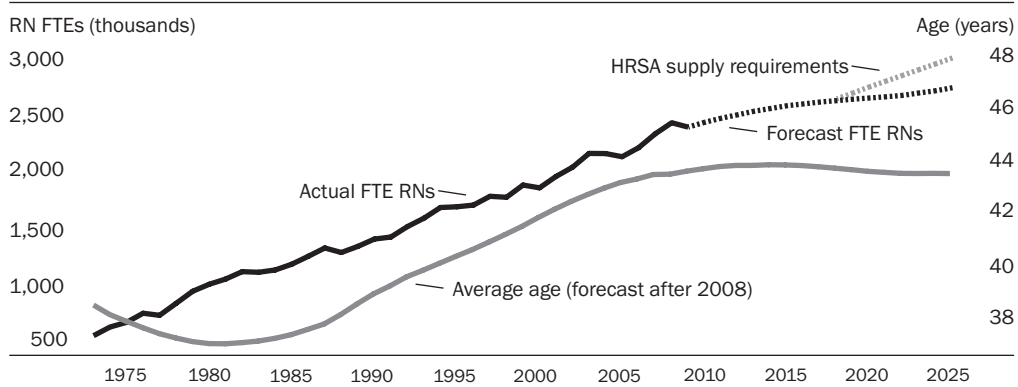
■ **Projections of the future age and supply of RNs.** Our new projections find that the surge in entry into the workforce in recent years, particularly among younger RNs, affects the future age and supply of the RN workforce. Our projections rest on two assumptions. First, we assumed that future cohorts will enter the nurse workforce at the elevated rate of the most recent cohorts who are now ages 23–25. This assumption might not hold if this entry is a temporary surge driven by the economic downturn, as noted above. However, this seems unlikely, because many of these RNs began nursing education programs and entered the labor market before the current recession started. A more likely explanation is that the increased entry of younger RNs into the workforce results from efforts to promote nursing as a

career.

Second, we assumed that these recent cohorts would follow the same life-cycle pattern that we have observed in previous cohorts, where large numbers enter nursing in their late twenties and early thirties. But this might not be the case if, in fact, we are observing a shift from late entry into nursing to early entry (that is, a reversal of the change we saw in the 1990s toward later entry into nursing). More important, if there is a reversal in the age of entry into the workforce, or if many new RNs leave the workforce permanently soon after entering because of changing economic conditions, then our model's assumption that large additional numbers from these recent cohorts will enter nursing in their late twenties and early thirties will be overly optimistic, and our projections of the size of the future workforce will be too high.

Given these assumptions and the uncertainty surrounding them, Exhibit 4 reflects the recent increase in numbers of younger RNs and our new projections indicating that the average age of the RN workforce will not increase as rapidly as our earlier projections suggested.¹² The average age of FTE RNs (now at 43.8 years) is projected to increase slowly over the forecast period, peaking at 44.1 in 2014 and returning to 43.7 by 2025, whereas earlier projections indicated the average age increasing to nearly 46.0 years by 2020. Our new projections also indicate that the supply of FTE RNs will be greater in 2025 compared to our earlier projections—reaching nearly 2.8 million FTE RNs (compared to the 2.5 million in the workforce observed today). Yet despite the recent swell in RN workforce entry, our projections indicate a shortfall of RNs developing around 2018 and growing to about 260,000 by 2025. These deficits are based on a comparison of our projected supply to the Health Resources and Services Administration's (HRSA's) most re-

EXHIBIT 4
Observed And Projected Average Age Of, Supply Of, And Demand For Full-Time-Equivalent (FTE) Registered Nurses (RNs), 1973–2025



SOURCE: Authors' calculations and forecast based on data from the Current Population Survey and U.S. census, 1973–2008.
NOTES: Number of FTE RNs (black and dotted lines) relates to the left-hand y axis. Age (gray line) relates to the right-hand y axis. HRSA is Health Resources and Services Administration.

cent estimates of RN requirements shown in Exhibit 4.¹³ Although this represents a notable improvement compared to earlier projections, the magnitude of the 2025 deficit would still be more than twice as large as any nurse shortage experienced since the introduction of Medicare and Medicaid in the mid-1960s.

The projected shortage and slower growth in the size of the future workforce is driven by large baby-boom RN cohorts retiring during the next decade and being replaced by smaller cohorts of RNs following them (those born in the 1960s). Larger cohorts born in the 1970s and 1980s will prevent the workforce from shrinking but are still not large enough to add enough RNs to meet the projected demand. Finally, if these projected shortages develop (which, of course, depends on how much future demand increases), then they will fall upon a much older RN workforce than did shortages that occurred in prior decades.

Discussion And Policy Implications

Given the impact of the current recession on RN employment, the changing composition of the RN workforce, and projections of a large shortage of RNs during the next decade, what actions can be taken to strengthen the current nurse workforce and expand the long-term supply?

■ **Strengthening the current workforce.** As the recession continues and results in national unemployment rates remaining high or increasing in 2009, employment among existing RNs is likely to persist at current levels and may even increase during 2010. Consequently, a mix of outcomes are expected: real RN wages are unlikely to increase, as employers (particularly hospitals) will not need to offer pay hikes to induce employment; vacant RN positions will be filled, and many hospitals will report an end to the nurse shortage; some new nursing graduates will experience difficulty finding jobs; nursing education programs could experience an increase in demand, as some people who are attracted by the relative job security and earnings offered in nursing seek to become RNs; and the capacity of some education programs could be affected negatively by state budget reductions.¹⁴ Recent evidence indicates that the recession could also result in the loss of RN jobs as hospitals face losses in investment income, increases in numbers of uninsured patients, and decreases in elective procedures.¹⁵ Because some employers and policymakers may interpret these outcomes as indicators that the “nursing problem” is over, attention could shift away from the nursing workforce and toward other matters. This shift in attention could be unfortunate, because an easing or end to the current shortage brought about by the recession gives employers and nurses a chance to “catch their breath” and focus their efforts on addressing the implications of the changing composition of the RN workforce.

Because our projections suggest that the proportion of older RNs in the workforce will continue to increase for several years (the proportion of the workforce that will be ages 50–64 is projected to peak in 2015, at 36.4 percent), efforts should be made to improve the ergonomic environment of the clinical workplace. Relative

to younger RNs, older RNs possess greater knowledge and clinical experience, which can be particularly valuable in detecting patient complications and intervening to prevent the complication from worsening the patient's condition or even causing death. Patient surveillance is likely to become an increasingly important nursing function, as the number of aging baby boomers with multiple chronic conditions and comorbidities increases in the years ahead.¹⁶ But because older RNs are more susceptible to injury and take longer to fully recover once injured compared to younger nurses, now is the time to concentrate on improving the ergonomic environment and invest in building up nurses' physical health.¹⁷ Not only will retaining older RNs in the workforce bolster the overall supply of RNs, but their continued presence could make an important difference in the quality and safety of patient care. Once the recession ends and unemployment rates begin to fall, an improved ergonomic environment may help retain many older RNs, who otherwise are likely to withdraw from the workforce.

■ **Role of foreign-born RNs.** Continuing pressures to increase the quality and safety of health care are likely to eventually raise questions about the relationship between RNs who immigrate to the United States and the quality and safety of patient care. Because it is well known that lapses in patient safety are linked to communication breakdowns, and because it is acknowledged within some nursing circles (if quietly) that some internationally educated RNs have difficulty with communication because of language or cultural differences, questions may arise over the safety of care provided by RNs educated in other countries. However, there is currently a gap in knowledge about the relationship between nurses' communication skills and patient safety, and we are unaware of any comparative assessments between U.S.- and internationally educated RNs on care outcomes and safety. Thus, more research is needed to investigate these relationships. Should results suggest a reason for concern, then interventions can be developed to improve communication skills among both U.S.- and internationally educated RNs. In light of projections of a large nurse shortage developing during the next decade, it is likely that the demand for RNs educated in other countries will increase; the easing of the current shortage provides a good opportunity to investigate this potential safety concern.

■ **Expanding the long-term supply.** We attribute the improved outlook for the future and the large 2008 increase in hospital employment to the following: (1) the economy-driven boosts in hours and reentry among RNs who might have otherwise not participated in the labor market (for example, the percentage of RNs working part time in 2008 was 17.4 percent, the lowest observed in our CPS data set); and (2) the increased entry of young RNs, some of whom recently finished their nursing education. The career choices for this latter group predated the recession and thus can be attributed not to the recession but to initiatives to encourage nursing as a career.¹⁸ Yet the ability to expand the long-term supply of RNs is in doubt. Since 2002, nursing enrollments have increased so briskly that each year approximately 30,000 or more qualified applicants have been turned away from nursing education programs.

“Men and Hispanics could add enough new RNs into the workforce to avoid the projected deficit through 2025.”

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Thus, barriers are blocking the needed expansion of the long-term supply.

We believe that an objective analysis of the structural barriers that restrict capacity (for example, reports of shortages of faculty, inadequate classroom space, lack of clinical education sites, and budget shortfalls) would be beneficial to policymakers.¹⁹ Specifically, a national study conducted by a respected, independent body such as the Institute of Medicine (IOM) could investigate these and other possible capacity constraints to determine their prevalence and severity. Also needed is a careful assessment of the private- and public-sector options that are the most likely to effectively expand capacity rapidly, can be implemented quickly, and are the least costly. Then specific actions for public and private policymakers can be undertaken to implement recommendations.

Men and Hispanics are a readily available source of prospective nurses who could take advantage of an expansion of educational capacity. Currently, an estimated 9 percent (218,000) of the RN workforce is male and 5 percent (125,000) is Hispanic. Both groups are greatly underrepresented in nursing relative to their proportion in both the population and the overall labor force. Whereas African Americans were once underrepresented, they now account for roughly 11 percent of the RN workforce, which is equal to their proportion in the overall workforce (in contrast, Asians are not underrepresented in the nurse workforce). The stigma of nursing as a traditionally female-dominated profession is believed to be one of the major factors discouraging men from becoming nurses, and the stereotype of RNs as white women may discourage women of color from choosing a nursing career. In addition, there is also a lack of role models and mentors for men and Hispanics considering nursing as a career. Financial and educational barriers may also discourage Hispanics from becoming RNs. However, if these barriers could be removed, then it is not unreasonable to expect that men and Hispanics could add enough new RNs into the workforce to avoid the projected deficit through 2025.²⁰ Until both the structural and social barriers to increasing the capacity and output of education programs are removed, it will be difficult to expand the long-term supply.

WE ANTICIPATE THAT THE CONTINUING RECESSION will ease or even end the current shortage of RNs in many areas of the country. Relief from the shortage provides an opportunity to strengthen the current workforce by improving ergonomic environments and addressing the potential safety-related implications of relying on increasing numbers of internationally educated RNs. However, some employers and policymakers may find the easing of the current shortage an irresistible temptation to look away from the nurse work-

force and spend their time on other issues. As the public hears reports that the current shortage is ending or that nursing positions are harder to find, interest in the nursing profession may wane, and some people may be less inclined to enter nursing during the next decade, when they will be needed most. To meet growing long-term demand, these anticipated responses need to be countered by messages directed at employers indicating that relief from the current shortage is temporary and driven by the recession; the public must hear messages that emphasize the long-term opportunities in nursing; and policymakers and educators need to hear messages that reinforce the need to preserve budgets for nursing education and remove the barriers to rapidly expanding the size of the future RN workforce.

With the election of President Barack Obama in 2008, prospects for reforming health care have increased. An adequate supply of nurses will be necessary for reform that emphasizes the expansion of health insurance coverage while improving the quality, safety, and efficiency of care. Unless there is significant progress in expanding the size of the future nursing workforce, realizing the goals of health care reform will be difficult.

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NOTES

1. First Consulting Group, American Hospital Association, *The Healthcare Workforce Shortage and Its Implications for America's Hospitals* (Chicago: AHA, 2001); and AHA, "The Hospital Workforce Shortage: Immediate and Future," *TrendWatch* 3, no. 2 (2001): 1.
2. S. Clarke and N. Donaldson, "Nurse Staffing and Patient Care Quality and Safety," in *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*, ed. R.G. Hughes, Pub. no. 07-0015 (Rockville, Md.: Agency for Healthcare Research and Quality, 2008); P.I. Buerhaus, D.O. Staiger, and D.I. Auerbach, "Implications of an Aging Registered Nurse Workforce," *Journal of the American Medical Association* 283, no. 22 (2000): 2948-2954; and D.I. Auerbach, P.I. Buerhaus, and D.O. Staiger, "Better Late than Never: Workforce Supply Implications of Later Entry into Nursing," *Health Affairs* 26, no. 1 (2007): 178-185.
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4. K. Evans and K. Maher, "Yearly Job Losses Worst since 1945," *Wall Street Journal*, 9 January 2009.
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7. Auerbach et al., "Better Late than Never."
8. The influence of spouses' earnings on an RN's decision to participate in the labor market and number of hours worked is reported in numerous studies. See, for example, C.R. Link and R.F. Settle, "Financial Incentive and Labor Supply of Married Professional Nurses: An Economic Analysis," *Nursing Research* 29, no. 4 (1980): 238-243; M. Bognano, J. Hixson, and J. Jeffers, "The Short-Run Supply of Nurses' Time," *Journal of Human Resources* 9, no. 1 (1974): 80-93; and F. Sloan and S. Richupan, "Short-Run Supply Responses of Pro-

- fessional Nurses: A Microanalysis,” *Journal of Human Resources* 10, no. 2 (1975): 241–257.
9. The wage offered by hospitals also effects RN employment. However, to avoid confusion and distraction from the impact of bust periods on increased RN employment, we did not include RN wages in Exhibit 1. Briefly, in 2002 and 2003 real RN wages increased, which would have had a positive impact on RN employment and thus have reinforced the recession’s impact on stimulating increased RN employment. However, during the current recession, real wages have decreased, which would negatively effect RN employment. Yet RN employment rose by record levels in both 2007 and 2008, indicating that the effect of real or anticipated loss of spouses’ income and jobs due to the recession, rather than wage changes, dominated RNs’ employment decisions.
 10. Although the CPS does not capture where people received their nursing education, comparison with data from the National Sample Survey of RNs from 2004 suggests that the number of foreign-educated RNs is just under one-third the number of foreign-born RNs; therefore, employment growth in this group does not solely reflect growth in the number of foreign nurse graduates (FNGs) working in the United States.
 11. For example, HRSA’s 2004 projections indicate that by 2020, if current trends continue, the national shortage of RNs will slightly exceed one million FTE RNs, suggesting that only 64 percent of projected demand will be met. Health Resources and Services Administration, “What Is Behind HRSA’s Projected Supply, Demand, and Shortage of Registered Nurses?” September 2004, <ftp://ftp.hrsa.gov/bhpr/workforce/behindshortage.pdf> (accessed 12 May 2009). Based on industry surveys, the Office of Occupational Statistics and Employment, Bureau of Labor Statistics, expects that employment of RNs will grow 23 percent from 2006 to 2016—much faster than the average for all occupations. BLS, *Occupational Outlook Handbook, 2008–09 Edition*, <http://www.bls.gov/oco/ocos083.htm#outlook> (accessed 18 May 2009).
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