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Demographics of the Registered Nurse Workforce: Trouble Now, Big Trouble Ahead

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This paper supplements a presentation given to the Council on the Economic Impact of Health System Change, September 21, 2001, Washington, DC. The presentation focused on the longer-term implications of an aging registered nurse (RN) workforce. This paper discusses a number of developments in the current nurse labor market and the changes that can be expected in the RN workforce over the near-term (next 2-5 years). Topics include: employment and earnings trends through 2000; explanations for the current hospital RN shortage; new evidence on nurse staffing and patient outcomes; collective bargaining and staffing legislation; expected near-term changes in the RN workforce; and key near-term uncertainties.

HOSPITAL EMPLOYMENT AND EARNINGS TRENDS OF NURSING PERSONNEL

Since 1995 the Robert Wood Johnson Foundation has supported a project conducted by Dr. Douglas Staiger (Dartmouth College) and I to determine and track employment and earnings trends in the US nursing workforce. The primary sources of data used for this project are the US Bureau of the Census Current Population Surveys and data from the National Sample Survey of the Population of Registered Nurses in the United States. Our analyses (Buerhaus & Staiger, 1996, 1999) have described annual trends in employment and earnings of RNs, licensed practical nurses (LPNs), and nursing aides, orderlies and assistants (aides) employed in hospitals, nursing homes, home health care, and physician offices. In addition, we have analyzed the impact of enrollment in HMOs on employment and earnings. Using new data through 2000, the following summarizes key trends in national employment and earnings of hospital based nursing personnel:

- Between 1983 and 1994, RN employment increased steadily in hospitals during most years (Figure 1). Since the mid-1990s, however, RN employment growth has leveled off, increasing in some years and declining in others. For example, in the two year period 1995-1996, RN employment declined 38,000. In 1997, however, employment rebounded 40,000. There was a slight dip in employment in 1998 followed by another rise of nearly 43,000 RNs in 1999, bringing the total number employed in hospitals to 1,226,576, the highest level of hospital RN employment ever. However, during 2000, the latest year for which data are available, RN employment in hospitals dropped by almost 50,000.
- In states with high enrollment in HMOs (Figure 2), hospital RN employment growth has been virtually stagnant throughout the 1990s; thus, the fluctuations in RN employment growth since the mid 1990s have occurred primarily in states with low HMO enrollment.
- Real (inflation adjusted) wages grew at an impressive rate between 1983 and 1992, increasing by between 3% to 6% annually. During the mid 1990s, however, hospital RN wages fell nearly 2% each year between 1994 and 1997. After rising in 1998, RN wage growth has been flat (Figure 3). RN earnings are higher in high HMO enrollment states versus low HMO states.
- LPN employment in hospitals has declined steadily over the past 15 years (Figure 1) even though inflation adjusted wages for LPNs have risen in most years (Figure 3).
- Hospital employment of aides has changed very little since 1983. During the 1990s, there were years in which employment increased rapidly (100,000 over the two year

period 1995 and 1996) and years in which employment declined substantially (a decrease of 50,000 in 1997).

- Inflation adjusted wages of aides have risen very little between 1983 and 2000, increasing by no more than 4%, a rate similar to the cumulative increase in average real earnings of most Americans during the same period.

In sum, hospital RN employment has leveled off since the mid-1990s and fell 50,000 in 2000. Real earnings have shown little if any increase since 1993. High HMO enrollment is associated with lower employment growth, but higher earnings for RNs.

EXPLANATIONS FOR THE CURRENT SHORTAGE OF HOSPITAL EMPLOYED RNs

Since early 1998, many hospitals began reporting shortages of RNs, particularly in intensive care units, operating rooms, and post-anesthesia recovery units. This most recent shortage can be explained by the interaction of at least five developments: rising demand; declining RN wages; improvements in spouse income and job security; low job satisfaction and discontent with the work climate in hospitals; and the effects of the aging RN workforce. Each are briefly discussed.

First, although good data on annual hospital demand for RNs is not readily available, and despite steady reductions in the number of hospitals and beds over the past two decades, RN demand is likely to be rising due to increasingly sick and older inpatients and increases in admissions since 1995. The limited ability to substitute lesser skilled and knowledgeable nursing personnel (LPNs and unlicensed aides) for more highly educated and skilled RNs, has likely played a role in increasing demand for RNs.

Second, inflation adjusted wages for RNs fell substantially for four years in the mid 1990s and have risen very little if any since 1997. As wages fall, holding all else constant, many (but not all) RNs have an economic incentive to reduce the number of hours worked, and some RNs may even withdraw from the workplace altogether.

Third, the strong national economy of the past few years is likely to have reduced the supply of RN labor in the workforce. Because the majority (approximately 70%) of RNs are married, changes in the incomes of their spouses (or in spouses' perceptions of employment security) directly influence the decisions of RNs on whether they will participate in the labor market and how many hours they are willing to work. Since unemployment levels have been very low over the past 5 years, consumer confidence has been rising, and real personal earnings have increased, many RN spouses' have experienced greater security and income growth. In turn, this has reduced the economic pressure on some married RNs to spend as much of their time working and may have even caused some RNs to withdraw from the labor market altogether.

A fourth reason for the development of the current shortage of RNs can be attributed to low job satisfaction and RNs' discontent with the work climate, as made clear in the study recently reported by Aiken and colleagues (2001). Regardless of economic circumstance, for some RNs dissatisfaction in the workplace (i.e, inadequate staffing, overwork, mandatory overtime, etc.) may be enough to cause them to reduce their willingness to participate in the labor market regardless of economic factors.

The final explanation of the current shortage of hospital RNs concerns important changes in the demographics of the RN workforce. Buerhaus, Staiger, and Auerbach (2000a) reported that the number of RNs in the workforce under 30 years of age dropped 41% between 1983 and

1998. In another study (2000b) they showed that the decreasing number of RNs under the age of 30 may be partly responsible for the current shortage of RNs in hospital intensive care units (ICUs). This is because ICUs have traditionally attracted younger aged RNs, and today there may simply be too few young RNs available for hospitals to attract into this setting. The analysis also showed that shortages in operating rooms and post-anesthesia recovery units, where the oldest hospital employed RNs work, stems in part from the retirement of older age RNs.

Whether shortages will continue at their same level, worsen, or dissipate over the near term is discussed later.

NEW EVIDENCE LINKING HOSPITAL NURSE STAFFING AND PATIENT OUTCOMES

In April 2001, the Department of Health and Human Services released the results of a study (Needleman & Buerhaus, 2001) that study sought to develop the evidence base on the relationship between patient outcomes potentially sensitive to nurse staffing in inpatient units in acute care hospitals. The study was co-sponsored by the Health Resources and Services Administration Division of Nursing, Health Care Financing Administration, Agency for Healthcare Research and Quality, and the National Institute of Nursing Research of the National Institutes of Health. Hospital discharge data were used to develop measures of outcomes potentially sensitive to nursing, and financial reports, special surveys, and American Hospital Association data were used to construct measures of inpatient nurse staffing (RNs, LPNs, and aides). Three samples were analyzed: 799 hospitals in 11 states (over 5 million discharge abstracts); 253 California hospitals; and, national Medicare discharge data (over 12 million discharge abstracts).

Of the 14 outcomes potentially sensitive to nursing examined in the study, results showed that both nurse staffing levels and mix of personnel, particularly RNs, are strongly and consistently associated with five patient outcomes in medical patients – urinary tract infections, pneumonia, shock, upper gastrointestinal bleeding, and length of hospital stay – and one patient outcome, failure to rescue, in major surgery patients. Higher RN staffing was associated with a 3 to 12 percent reduction in adverse outcomes, and higher staffing of all levels of nursing personnel was associated with a 2 to 25 percent reduction in adverse outcomes.

As perhaps the largest and most sophisticated effort to date aimed at assessing the relationship between nurse staffing and quality of patient care, the study has received considerable attention in the media and health policy community (e.g., nearly 4,000 downloads in the first six days it was posted on the internet: <http://bhpr.hrsa.gov/dn/staffstudy.htm>). The comment of one US Senate staffer summarizes the reaction of many in the policy making community: “Because of this study, those of us interested in the quality of hospital care now know that we can’t focus solely on medical care, we must consider nursing and all the issues that affect nurse staffing”.

COLLECTIVE BARGAINING AND STAFFING LEGISLATION

In light of current hospital RN shortages, widespread dissatisfaction with the work place environment, evidence that nurse staffing is unequivocally related to patient outcomes and the quality of patient care, legislators and hospital executives have and can continue to expect increasing attention on issues concerned with nurse staffing. Several studies assessing nursing’s contributions to patient care are in progress (Buerhaus & Needleman, 2000), and once results are published, public focus on the nursing workforce and the problems nurses’ are experiencing is

likely to capture still more interest among the media, government, policy makers, and special interest groups, particularly labor unions. One can expect the media attention to stimulate an already increased level of collective bargaining activity and support for regulatory oversight of nurse staffing issues, particularly mandatory staffing and overtime hours. Already, ten states are reported to be entertaining legislation on these issues. Hence, during the foreseeable future, Congress, the states, and influential policy shaping bodies (such as the Council on the Economic Impact of Health System Change) can expect to be dealing with complex issues involving nurse staffing, shortages, quality of care, and what can be done to strengthen the nursing workforce.

EXPECTED NEAR-TERM CHANGES IN THE RN WORKFORCE

Over the next five years, a number of important changes can be expected in the RN workforce. First, I expect RN shortages will continue and spread both geographically and by sector of the nurse labor market (i.e., develop in home health, nursing homes, and perhaps even in physician offices). In addition, shortages are likely to slowly increase in severity and more organizations will be unable to staff their facilities at the level they desire. In response, hospitals will raise RN wages—and may even increase them sharply—but I do not expect the labor supply response of RNs (increasing the time they spend working) will be as large as what occurred in the 1980s when earnings were also increasing substantially. This is because the RN workforce is, on average, much older today (mean age 43 years) than in earlier decades, the national economy is still relatively strong (at least not yet in a confirmed recession), and there are not large numbers of RNs who are readily available to re-join the workforce. Even though RN earnings will probably rise and result in some increase in the amount of labor supplied by RNs, I do not expect the response will be large enough to eliminate shortages. Over the next five years,

I also expect little if any increase in enrollment into nursing education programs as well as the continued aging of the RN workforce.

NEAR-TERM UNCERTAINTIES

Whether these near-term expectations materialize will depend largely on whether three events develop. Should the national economy experience a recession and result in stagnant or falling earnings, rising unemployment, decreasing job security, and diminishing consumer confidence, then economic pressure on RNs will grow and induce many to remain in the workforce, particularly married RNs. (If RN wages increase, as expected, RNs would face even more economic incentive to increase their labor output). Consequently, many married RNs will be motivated to rejoin the nursing workforce if they are not working, and some of those who are working will increase the number of hours worked. The resulting increase in labor supply could slow the development of further RN shortages. The magnitude of the increase in the supply of RN labor will be driven by how severe and how long the recession lasts, if it develop in the first place.

A second uncertainty is whether Congress and the states enact and fund comprehensive policies to address the forces driving the instability in the RN workforce. Thus far, three pieces of legislation have been introduced in Congress. Current legislation contains provisions aimed at addressing many but by no means all of the problems beleaguering the RN workforce. Moreover, the amount of dollars that are outlined in the proposed legislation is not impressive, and suggests that legislators and their staffs fail to grasp the depth and breadth of both current and projected shortages of RNs and their impact on society, employers, educators, and the public's health. In addition, it is not clear when the various proposals will be reconciled into one

bill, whether the legislation will be funded adequately, when the legislation will be passed by Congress and signed into law, and how soon federal agencies will be able to write and implement regulations governing the distribution of funds and start up of new programs.

Unfortunately, precious time was already lost this spring as members of Congress requested the Government Accounting Office (GAO) to determine if, in fact, a current RN shortage exists when Congress could have been acting. Based on what has been demonstrated thus far, one can not rely on Congress to play a timely role in enacting effective and decisive legislation that will address current problems, let alone prevent large RN shortages projected for the future as discussed in the presentation to the Council.

Whether the above near-term expectations unfold over the next five years also will be influenced by the politics of quality and regulation. It is not clear how the majority of nurses and the professional organizations and labor unions that represent them will react to the “new knowledge” that nurse staffing makes an important contribution to the quality of care and patient outcomes. Shortages, complaints about the work place, and growing public concerns about quality are shifting economic power from employers to nurses. Nurses and their representative organizations are in a stronger position to obtain their various interests than in the 1990s. If they choose to exercise this power in a contentious manner, then current difficulties in the nurse labor market may not improve over the next several years. On the other hand, if nurses and labor unions act constructively and focus on rebuilding relationships with employers by engaging and working with them to improve the workplace environment and remove barriers blocking nurses’ ability to provide quality patient care, then the near-term forecast may improve. Thus, whether near-term conditions in nursing improve or worsen will depend not only on what happens to the

economy and how soon and effective Congress acts, but on how the nursing community handles its new found economic power and spotlight in the national media.

Because options to guide policy development aimed at strengthening the nursing workforce in the near- and long-term have been described elsewhere (Buerhaus, Staiger, Auerbach, 2000c), they will not be repeated here. The options deal with actions to cope with an aging workforce, raise future supply, and draw attention to the serious problems in nursing.

WHAT THE COUNCIL CAN DO TO HELP

Obtaining favorable legislation and public policies are only part of the solution needed to address the forces beleaguering the RN workforce and the employers who depend on them. In the end, the most effective change needed will not come from reshaping public policy and using government intervention, but from changing attitudes and perceptions in the real world where markets and people interact daily, where media convey images of society and what is valued, where people form images of desirable careers, and where people with resources and connections make decisions that influence the behavior of millions of people. Unless and until the private sector values the contributions of nursing not unlike the way the teaching profession is valued, the nursing profession will be unable to respond effectively to the near- and long-term expectations projected for the RN workforce.

If society were to accord greater social value to the nursing profession and if the image of the nursing profession could be improved, it will be much easier to attract people into nursing. Very large numbers of people will be needed (as much as a 40% increase in enrollment beginning now) to avoid the RN shortfalls projected to develop after 2010. To improve the image of nursing will require sweeping changes throughout society. There is an opportunity for

the Council to consider how it can use its influence to raise not only the level of policy attention given by Congress and state legislators, but help engage the private sector to reshape the image and elevate the social status of the nursing profession.

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