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Why Are Shortages of Hospital RNs Concentrated in Specialty Care Units?

Executive Summary

- ▶ This article is the first in a series examining the interplay between the aging of the nurse workforce and other factors driving the growing nursing shortage that are already affecting some specialty areas.
- ▶ Nearly 60% of the current RN workforce is over 40 years of age; and the percentage of RNs under age 30 has fallen by nearly 40% since 1980.
- ▶ The total number of FTE RNs is projected to shrink after 2010, likely resulting in shortages of RNs "when the large baby-boom generation of RNs starts to retire."
- ▶ Because ICUs have historically attracted younger RNs, the rapid decline in the number of RNs in the workforce under age 30 plays a large role in explaining the development of shortages in the ICU.
- ▶ The growing difficulties staffing operating rooms and other peri-operative services is seen as related to the aging workforce as more diploma prepared nurses have been attracted to this specialty because they had educational exposure to this area.

THE NURSE labor market has undergone tremendous change during the last decade. Starting in the early 1990s, a shortage of registered nurses (RNs) affected hospitals nationally. By 1994, however, the shortage had disappeared and the conventional view was that the nurse labor market was experiencing an excess supply of RNs.

In 1995, at the request of the Secretary of Health and Human Services, the Institute of Medicine (IOM) convened the Committee on the Adequacy of Nurse Staffing in Hospitals and Nursing Homes. This committee examined a wide range of concerns including staffing levels, future supply and demand for nurses, increased use of unlicensed assistive personnel, and potential adverse impact of hospital restructuring on nurses and patients. The committee emphasized how the roles of RNs are expected to change in the future, discussed forces likely to affect nurse employment and, although it made no recommendations on the supply and demand for nurses, seemed to support the prevailing view reported by researchers at the time that there would be enough RNs available in the near future. With regard to hospital staffing and quality of care, a lack of

available empirical evidence prevented the IOM from reaching definitive conclusions.

A few years later, in 1998, new reports of hospital RN shortages broke out throughout the country. Today, as we move through the first year of the new millennium, RN shortages continue; indeed, some hospitals are offering RNs sign-on bonuses as high as \$10,000.

This four-part series on the nurse labor market discusses a number of developments that are expected to exert a significant impact on the RN workforce for years to come.

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Figure 1.
Percent of FTE RNs Under Age 30 vs. 40 and Above

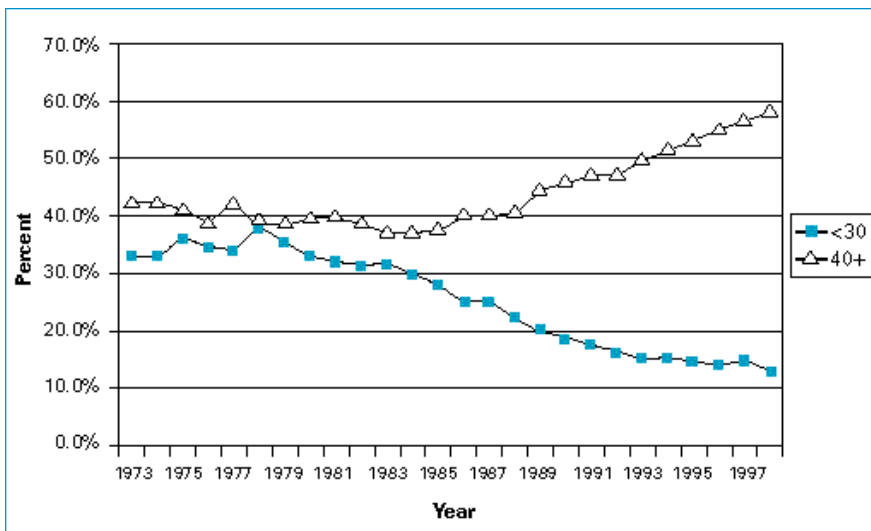
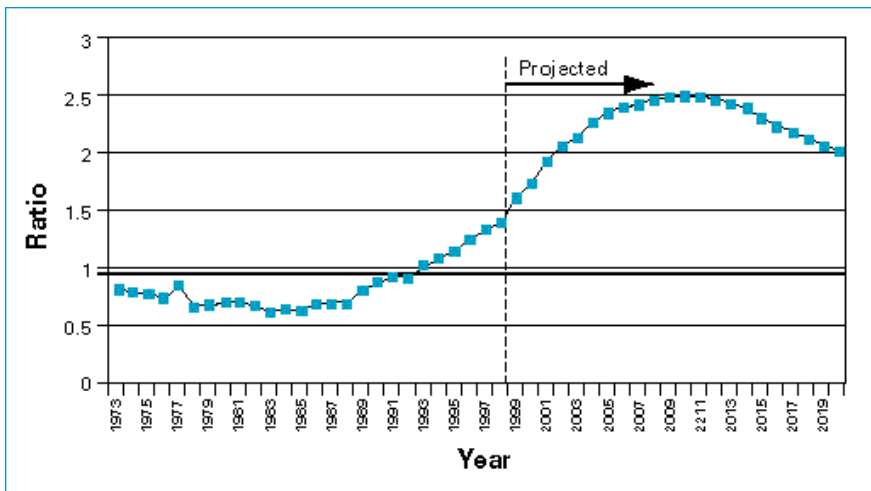


Figure 2.
Number of RNs (FTE Weighted) Over Age 40 per RN Under 40



The series begins here with an examination of whether changes in the age composition of the RN workforce are related to current hospital RN shortages. Future topics include:

1. The extent to which the large number of older age RN graduates from associate degree programs explains the increasing average age of the RN workforce.
2. How the expansion of career

opportunities for women in the last 3 decades has not only contributed to the rapid aging of the RN workforce, but is expected to play a major role in the development of future shortages.

3. Ideas that employees, educators, nursing associations, and policymakers might consider to strengthen the current and future RN workforce.

Background

Since 1988 hospitals in every region of the nation have reported shortages of RNs. Shortages have been reported by both community and teaching institutions, and in hospitals located in urban and rural areas (Buerhaus, 1998; Greene & Nordhaus-Bike, 1998; Hill-Popper & Kuhl, 1999). Even temporary nurse staffing agencies and national traveling nurse firms have reported that demand was so strong they were unable to find all the RNs needed to fill open positions (Dull, 1999; Silber, 1999). In most cases, however, hospital RN shortages have not been institution-wide but concentrated in specialty care areas, particularly intensive care units (ICUs) and the operating room (OR) (American Organization of Nurse Executives, 1998; Kuhl, 1999; *Wall Street Journal*, 1999). Less frequently reported are shortages affecting general medical and surgical units.

OVER THE PAST several years researchers have examined trends in the nurse labor market and have reported on changes in employment and earnings for all nursing personnel, shifts in employment from one setting to another, and how the spread of managed care has affected these trends (Buerhaus & Staiger, 1996, 1999). Researchers have also assessed health care executives' views about the nurse workforce (Buerhaus & Staiger, 1997; Buerhaus, 1999) and have analyzed trends in the growth of minorities in nursing (Buerhaus & Auerbach, 1999). Yet, clues as to why shortages of RNs are concentrated in certain specialty care areas have not been discerned. However, a recent study which focused on identifying the forces responsible for the rapid aging of the RN workforce (Buerhaus et al., 2000), has led to a possible explanation for RN shortages in hospital specialty care units.

The evidence for this explanation is built by first reviewing some

of the key findings of the study on the aging RN workforce, describing the major trends in the age composition of the current RN workforce, and summarizing the results of forecasts for the future. The data for these trends and results were obtained from two sources, the U.S. Census Bureau's annual Current Population Surveys (CPS), and the Bureau of Health Professions National Sample Surveys of the Population of Registered Nurses (NSSRNs) (Moses, 1977-1996). Both of these data sources, the forecasting model, and statistical analysis are fully described in the report of the aging RN workforce (Buerhaus et al., 2000) and are not repeated here.

Recent Trends in the Aging RN Workforce and Forecasts for the Future

This earlier work on the aging RN workforce found that there are far fewer young people choosing nursing as a career. Two reasons explain this finding. First, there have been smaller populations of potential nursing students born each year since the large number of people who were born during the baby-boom generation (between 1946-1960). Second, the women's movement in the 1970s led to a tremendous expansion in career options for women. The combination of these developments resulted in a much smaller percentage of women who were born in the late 1960s and 1970s choosing to become RNs compared to the percent born in earlier decades (the 1950s) who entered nursing. Consequently, the number of younger RNs who entered the workforce each year in the late 1980s and 1990s were smaller in size than their older, baby-boom RN counterparts.

As a result of these changes, the RN workforce has been aging at a rapid pace. Figure 1 shows the percent of RNs in the workforce over the age of 40 years has been increasing swiftly since the mid-1980s and now accounts for nearly 60% of the

Figure 3.
Total FTEs: All RNs, RNs Under 40, and Diploma RNs, 1977-1996

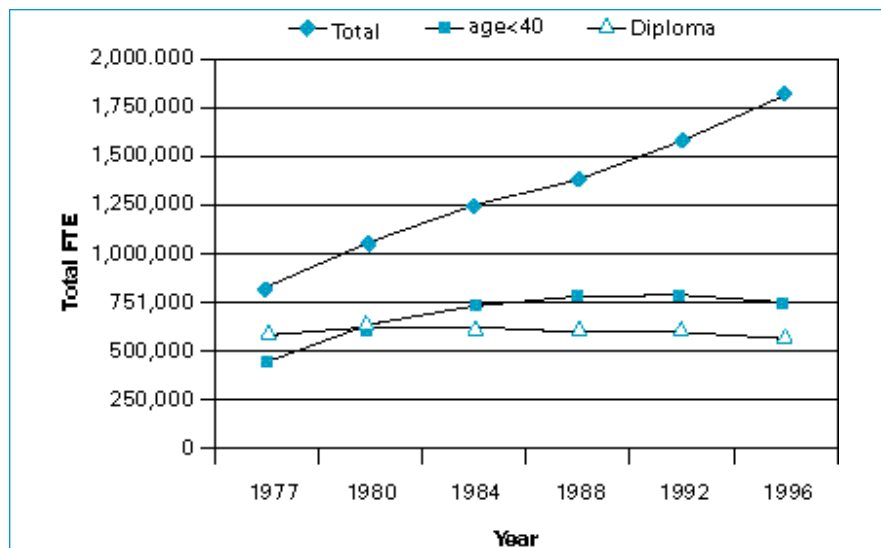
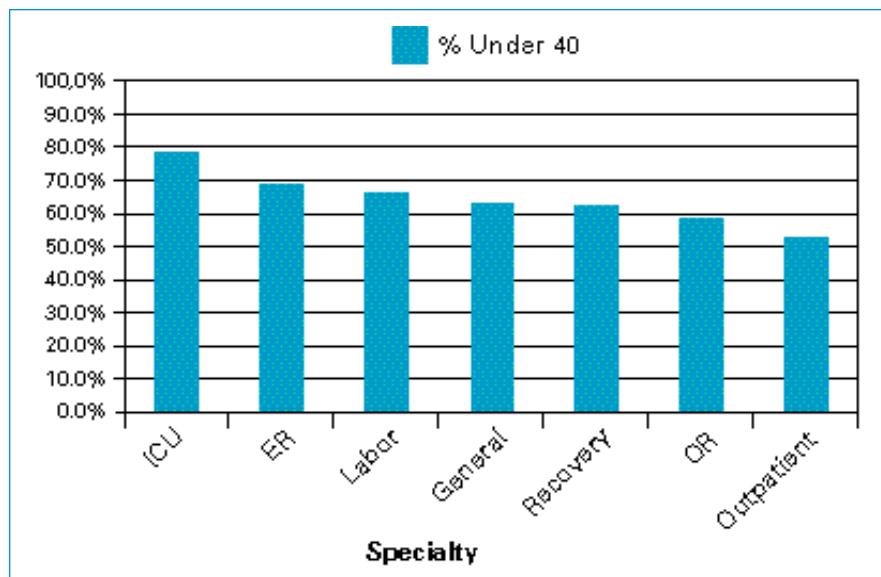


Figure 4.
Percent of RNs (FTEs) Under age 40, by Unit, 1988



RN workforce. The decline in the percent of younger RNs (see Figure 1) in the workforce is equally dramatic. In fact, the total number of FTEs supplied by RNs under age 30 has fallen by approximately 145,000, or nearly 40% since 1980. Projections of the future composition of the RN workforce suggest that the RN workforce will continue to age. For example, within the next 10 years the average age of

employed RNs is projected to increase 3.4 years to 45.4, 40% of the RN workforce will be in their 50s and 60s, and there will be approximately 2.5 RNs over the age of 40 for every RN under that age (see Figure 2). Moreover, it can be expected that the total number of FTE RNs will begin to shrink after 2010 (Buerhaus et al., 2000). The contraction will continue such that the number of FTEs in 2020 is

Figure 5.
Percent of RNs (FTEs) With Diploma Degrees, by Unit, 1988

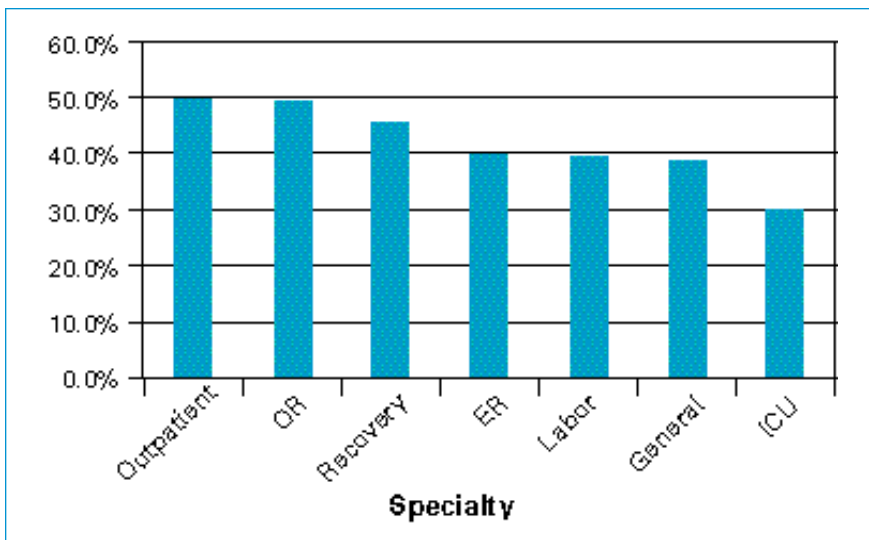
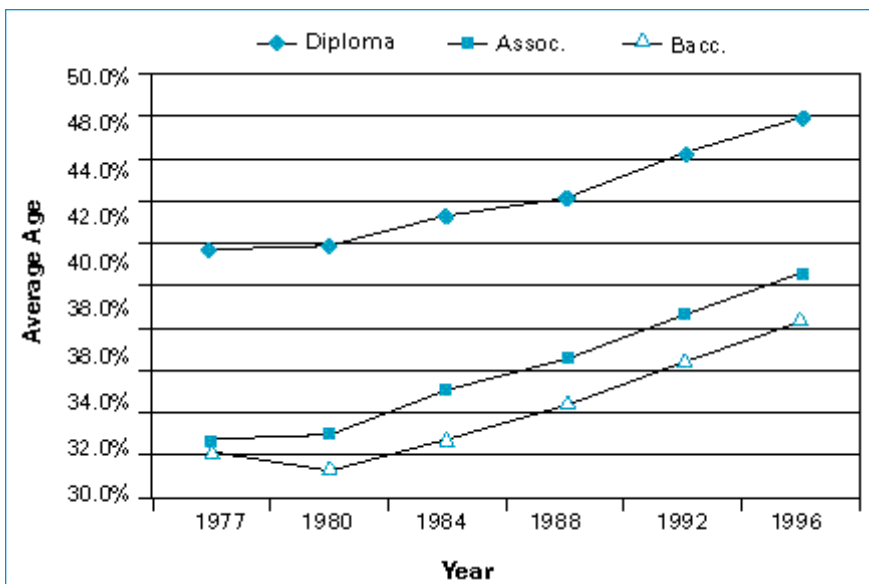


Figure 6.
Average Age of FTE RNs, by Degree



expected to be roughly the same as the number today (Buerhaus et al., 2000). When the large baby-boom generation of RNs start to retire, the RN workforce will shrink and shortages of RNs will result.

Although large overall shortages of RNs are not expected in the near future, a declining number of

certain types of RNs is already being observed. In particular, the number of young RNs (those under 40 years) have been declining as have the number of RNs who received their basic nursing education in diploma programs. Figure 3 shows that the total number of FTE RNs has been increasing steadily

since 1977, but the number under 40 and the number of diploma-prepared RNs has been declining during the 1990s. These trends suggest that workplaces that rely on young or diploma-prepared RNs may already be having difficulty finding enough RNs to meet existing demand.

RN Shortages in Intensive Care Units

When data on the age of employed RNs from the NSSRN were examined, it became clear that ICUs have employed younger RNs (see Figure 4) more than other hospital work settings. Two reasons probably explain why ICUs attract a relatively large percentage of younger RNs. First, ICUs began to develop in the 1960s and the number of hospitals with ICUs increased rapidly in the 1970s and 1980s. Therefore, nursing students in the 1970s and 1980s (who today are in their late 30s and early 40s) would have been more likely to have had clinical rotations in ICUs during their nursing education. Similarly, after graduation, these RNs would have been more likely to have taken positions in ICUs compared to RNs who entered nursing during earlier years (the 1950s and 1960s) when ICUs were less prevalent. The second explanation for why ICUs employ a large percent of younger RNs is based on numerous conversations with clinicians and administrators who report that the challenge and excitement of the ICU environment attracts younger RNs more than older RNs.

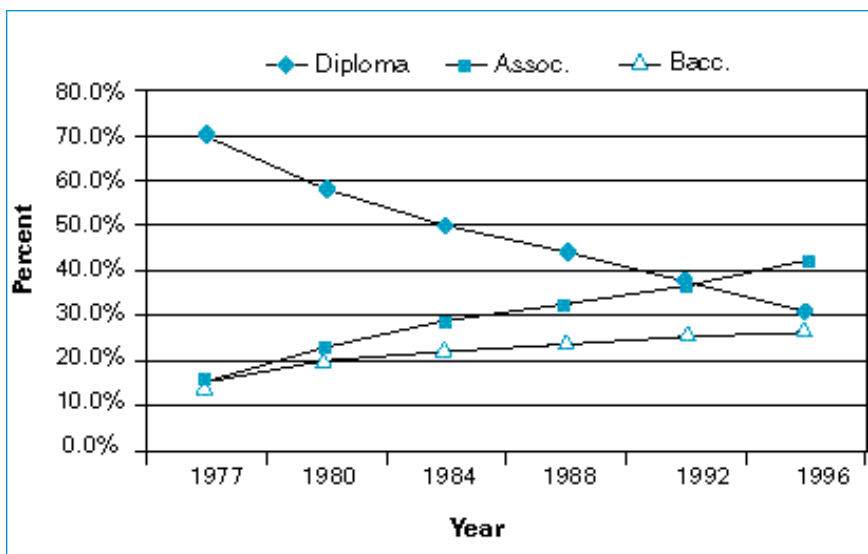
Can the propensity of younger RNs to work in ICUs, combined with the trends in the age distribution of the RN workforce explain the recent RN shortages in this setting? Recent graduating classes of RNs are shrinking in size (some as much as 50% smaller) compared to graduating classes in the 1970s and 1980s and this trend is expected to continue over the next 10 years. In addition, data in Figure 1 show that there are far fewer younger RNs

today than in the 1980s, the very ages in which many RNs tend to be attracted into the ICU setting. Thus, it is possible that the current shortage of ICU RNs reflects, to a significant degree, the fact that there is a shrinking supply of younger-aged RNs from which ICUs have typically drawn. Put another way, although the ICU is drawing an increasing percentage of newly graduating RNs, it is a slightly increasing percentage of a significantly shrinking pie.

RN Shortages in the Operating Room

Data in Figure 5 show the highest percentage of diploma-prepared RNs work in ORs, the recovery room, and the outpatient setting. The reason diploma-prepared RNs work in these settings may have to do with the timing of when they received their nursing education. Prior to the mid 1970s, the majority of RNs received their nursing education in hospital-based, 3-year diploma programs. Many nurses and educators have said that these programs offered students significantly greater exposure to all hospital clinical areas, including the OR, than did 2 and 4-year university-based nursing education programs, which increasingly replaced hospital-based diploma programs during the latter 1970s and 1980s. The shift away from diploma programs meant that younger-aged college-educated nursing students in the late 1970s and 1980s were less likely to have had significant experiences and clinical rotations in the OR than RNs who had been educated principally in hospital-based diploma programs in earlier decades. Thus, diploma graduates would be more likely to have taken positions in the OR and recovery room following graduation compared to graduates of associate and baccalaureate programs. In addition, the timing of the changeover in nursing education programs probably accounts for why the average age of RNs who are diploma graduates is higher than for nondiploma graduates (see Figure 6). Notice, however,

Figure 7.
Workforce of FTE RNs by Degree, Percent of Total



that the proportion of the RN FTE hospital workforce that comprises diploma graduates is shrinking (see Figure 7).

With regard to the development of RN shortages in ORs, it is plausible that many older RNs, particularly those who are diploma graduates and who have been working in the OR, are beginning to reduce the number of hours worked or deciding to retire altogether, with the result that shortages are being reported by hospitals. Moreover, the increasing demand for OR RNs, particularly in lower-overhead ambulatory care surgi-centers, has exacerbated the difficulty in attracting and keeping OR nurses (Patterson, 1998). Fully considering demand-side forces is, however, beyond the scope of this article. In addition to the OR and recovery room, a considerably higher proportion of older RNs also work in hospital outpatient settings (see Figure 5). This is explained by the shorter work hours, less weekend shifts, and lighter workloads offered in this setting compared to inpatient settings. Nevertheless, to the extent that the above reasons explain the development of shortages in ORs, outpatient settings

may experience shortages in the relatively near future as more diploma-prepared RNs begin to retire.

Discussion and Recommendations

That the average age of the RN workforce is increasing is not a new finding. What is new, however, is that the examination of CPS and NSSRN data reveals how rapidly working RNs are aging. When data on RNs are analyzed by age categories, hospital unit, and education background, it is clear that younger RNs are clustered in ICUs and older RNs, who are likely to be graduates of diploma programs, tend to work in the OR, the two areas where RN shortages are most commonly reported today. Based on this analysis, the shortage of ICU RNs can be explained, in part, by the sharp decline of younger-aged RNs from which ICUs have historically attracted. Shortages in ORs probably reflect the fact that a considerable number of RNs who work in this setting are graduates of disappearing diploma programs and thus have reached the age where they are beginning to reduce their hours worked or retiring altogether.

The findings suggest that the only way to resolve RN shortages in

ICUs and ORs is to pursue strategies aimed at promoting the attractiveness of these work units. ICUs face the problem of attracting relatively small numbers of younger-aged RNs who will be entering the labor market over the next decade. Hospitals, therefore, could offer preceptor and education programs designed to help new graduates acquire the knowledge, special skills, and confidence needed to work in ICUs. In addition, initiatives could be taken to forestall RNs presently working in ICUs from leaving this setting as they age. Economic incentives, work re-engineering, and improvements in ergonomic and workplace conditions are areas where changes can be made to help retain the current ICU workforce. In addition, nursing schools might consider offering special courses appropriate to intensive care nursing or adding more clinical rotations in ICUs. For ORs, many of the same strategies indicated for ICUs apply as well. In addition, strategies should aim at finding ways to modify the work environment to promote retention of existing RNs, postpone their retirement, increase nursing students' exposure to the OR, and provide economic incentives and training aimed at attracting the large number of RNs in their 40s to shift into the OR.

Concluding Comments

This analysis of the RN workforce offers a plausible explanation, though not the only reason, for current RN shortages in ICUs and ORs. Trends in the hospital-employed RN workforce suggest that these shortages will continue as baby-boom RNs age and retire at an increasing rate in the not-to-distant future. The inability of younger RNs to replace the aging baby-boom RNs suggest that the demographic forces underpinning the RN labor market will not ease for many years to come. Thus, resolving these shortages will not be easy and are likely to require long-term and highly innovative initiatives. \$

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