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DATAWATCH

Millennials Almost Twice As Likely To Be Registered Nurses As Baby Boomers Were

Baby-boomer registered nurses (RNs), the largest segment of the RN workforce from 1981 to 2012, are now retiring. This would have led to nurse shortages but for the surprising embrace of the profession by millennials—who are entering the nurse workforce at nearly double the rate of the boomers. Still, the boomers' retirement will reduce growth in the size of the RN workforce to 1.3 percent per year for the period 2015–30.

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Changes in the size and age composition of the registered nurse (RN) workforce can be explained by a number of factors, including demand for the services that RNs provide, the trajectory of typical nursing careers, and economywide phenomena such as the Great Recession. The largest factor, however, is a cohort effect: the combination of socioeconomic conditions and trends in health care present when people (typically in their twenties) consider careers in nursing. These factors make it more or less likely that someone will become an RN and, consequently, have a profound influence on the nurse workforce (Exhibit 1).

Large cohorts of career-oriented women born shortly after World War II entered nursing in record numbers (partly because other professions were still somewhat closed to them), so that RNs who were part of the baby-boomer generation dominated the nursing profession by 1981 and brought the average age of an RN down to thirty-eight in that year.[1] The generation that followed, Generation X, came of age in an era of expanded career opportunities for women in law, business, and medicine, and its members

EXHIBIT 1

Full-time-equivalent registered nurses by generation, historical and projected
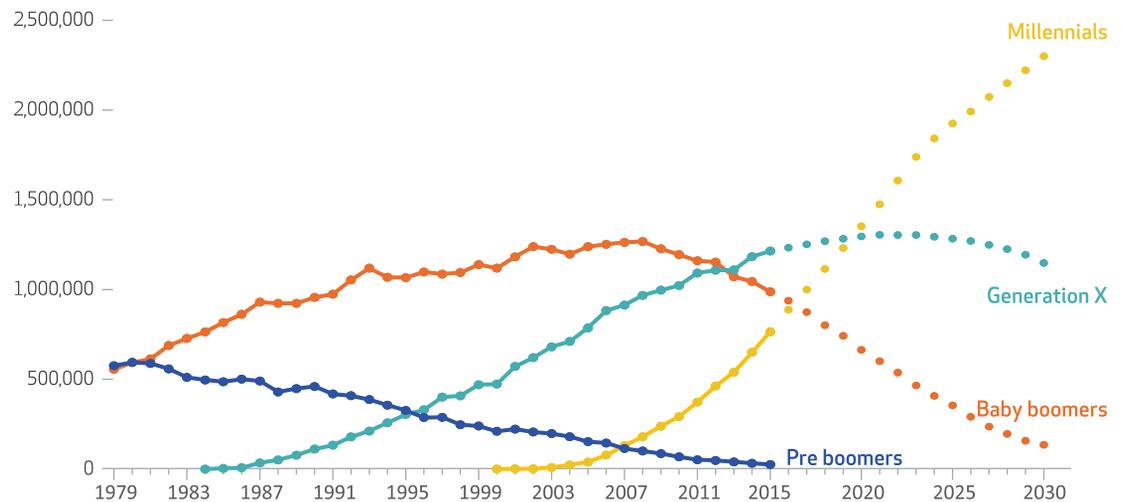
SOURCE Authors' calculations and forecast model, based on data from the Current Population Survey and American Community Survey. **NOTES** The exhibit does not include advanced-practice registered nurses (RNs). Pre boomers are RNs born before 1946. Baby boomers are those born in the period 1946–64), while Generation X are those born in 1965–81, and Millennials are those born in 1982–2000. Dotted lines are projections after 2015. The Appendix provides details on data and forecast methods (see Note 9 in text).

initially were less attracted to nursing than their predecessors were. The nurse workforce displayed the classic "pig in the python" demographic profile, with a large bulge of aging workers. In 2005 the average age of members of the nurse workforce was forty-four—which led to projections of widespread nurse shortages with the retiring of the baby-boomer RNs, beginning around 2010.[2]

As we have reported previously, large national shortages of RNs have been averted by the confluence of two factors that may have stemmed from the economic conditions of the 2000s, including the Great Recession: the delayed retirement of the baby-boomer RNs and the surprising surge of interest in nursing among members of the Millennial generation.[3,4] It is not entirely clear why Millennials have been drawn to nursing in such numbers (for example, by the time the first members of the Millennial generation reached age thirty-three, there were 760,000 Millennial full-time equivalent [FTE] RNs, compared to 400,000 in Generation X at the equivalent point in time). One factor may be their coming of age in a time of profound economic uncertainty and earnings instability, as noted by economists.[5] The impact of national initiatives that promoted the nursing profession (such as Johnson & Johnson's Campaign for Nursing, which began as the Campaign for Nursing's Future in 2002) and Millennials' general tendency to be drawn to meaningful work with opportunities to learn and grow may have also contributed.[6] RNs have stable lifetime earnings and low rates of unemployment, as well as vast opportunities to change positions and geographic locations and to take on new and expanded roles in an ever-changing health care landscape.[7]

In this article we apply a broad generational perspective to our RN forecast model to understand the size of incoming Millennial cohorts relative to exiting baby-boomer cohorts and the implications of these trends for the growth, makeup, and character of the RN workforce.

Study Data And Methods

Our data came from the Census Bureau's Current Population Survey for the period 1979–2000 and from its American Community Survey for 2001–15. We extracted data on 429,585 RNs based on reported occupation (we excluded advanced-practice RNs) and assigned each RN an FTE number based on his or her reported usual hours worked, relative to a standard FTE workweek, in combination with the survey sampling weights. We used standard generational boundaries from the Census Bureau: Specifically, baby boomers are people born in 1946–64, members of Gener-

ation X were born in 1965–81, and Millennials were born in 1982–2000.

We forecast the number of RNs by age for each year from 2016 to 2030 using a regression model in which the number of observed FTE RNs for each single year of age (each year from 1979 to 2015) was explained by the total population in the birth cohort, an indicator for each single year of birth (cohort), an indicator for each single year of age, and variables that accounted for the fact that students began entering nursing education programs at older ages starting around 1990 and began retiring at older ages starting around 2000. This model has been tested and refined over the past twenty years and has been found to accurately predict the future supply of RNs in total, by age, and by US region[2,8] (for details and references, see the online Appendix).[9]

Life-cycle patterns (the age terms), which include retirement trends, have shifted only very gradually over time and were assumed to remain stable throughout the forecast window.

We forecast the size of future (unobserved) cohorts based on the observed average size of the previous five cohorts.

The main limitations of the analysis concern the uncertainty about future entry into nursing of cohorts whose members have not yet made career choices and were not observed in the data. Fortunately, the trend in entry into nursing has been stable for several years, which reduces the potential inaccuracy in our model's estimates.

Study Results

Cohort effects that led to the patterns observed in Exhibit 1 are illustrated for each birth year in Exhibit 2, which displays the likelihood of an individual born in each year to eventually become an RN relative to that likelihood of someone born in 1955—the peak of the baby boom.

After dropping in the 1960s, the likelihood that someone born in a given year would become an RN increased markedly through the late 1970s and 1980s (Exhibit 2). Those born in the late 1980s were 65 percent more likely to become an RN, compared to those born in 1955. Overall, an average Millennial has thus far been nearly twice as likely (186 percent) to become an RN as an average baby boomer. However, these rates of entry appear to have finally reached a plateau, as reflected by the fact that a constant number of RNs took the required licensure exam in the period 2013–16, after that number doubled between 2003 and 2013.[10]

One implication of these cohort dynamics is the impact on the future age distribution of RNs in the workforce. RNs younger than age thirty-

EXHIBIT 2

Likelihood of a person born in a given year becoming a registered nurse, relative to the 1955 birth cohort
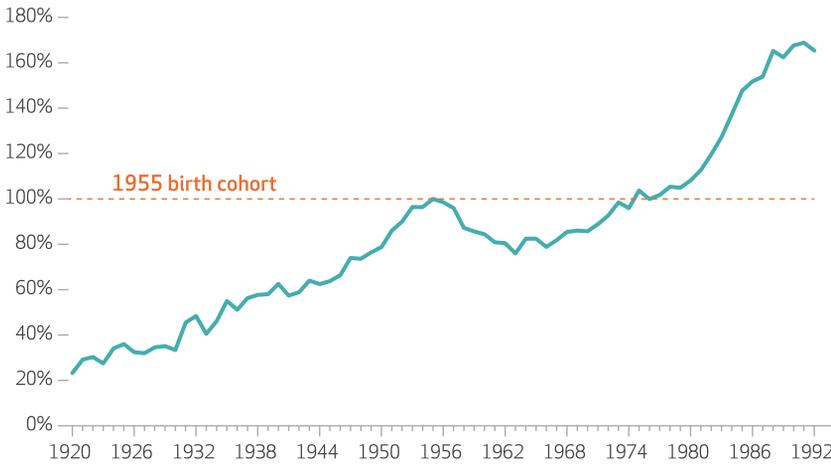
SOURCE Authors' calculations and forecast model, based on data from the Census Bureau's Current Population Survey and the American Community Survey. NOTES The exhibit does not include advanced-practice registered nurses. The peak of the baby boom was in 1955.

Overall, considering the acceleration in retirement of the baby boomers and the stabilization of the entering cohort sizes among Millennials, we expect the nurse workforce to grow 36 percent, to just over four million RNs, between 2015 and 2030, a rate of 1.3 percent annual per capita growth. This is a rate of per capita growth similar to that observed from 1979 to 2000, but half the rate observed in the rapid-growth years of 2000–15 (2.5 percent). In other words, even with Millennials' unprecedented rate of entry into nursing, the retirement of the baby boomers will dampen (but not erase) the workforce growth rates of the past decade.

The 2.5 percent annual growth rate in 2000–15 appears to have been adequate to prevent widespread nurse shortages and rapid increases in RNs' wages.[11] Whether a growth rate of 1.3 percent per year will be adequate to prevent large national shortages, particularly in light of the aging population, is difficult to gauge. The Health Resources and Services Administration recently estimated that demand for RNs would increase roughly 1.5 percent per year from 2012 to 2025,[12] slightly above our estimated supply growth. Furthermore, a 2006 study projected that the impact of population aging on per capita growth in hospital utilization would peak at 0.89 percent annually in the period 2020–22.[13] Nevertheless, as noted by the study's authors, population aging is expected to have less impact on health care demand and use than other factors such as changes in technology and practice patterns—which are very hard to predict, partic-
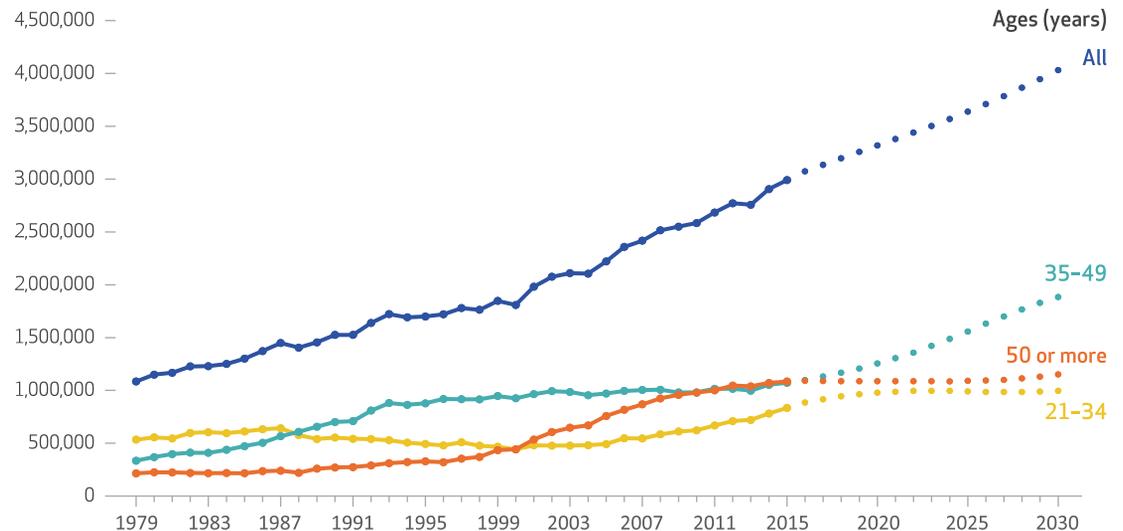
five were the largest group of RNs in the workforce in 1979 (Exhibit 3), when the baby boomers were rapidly entering the field of nursing. The number of younger RNs dipped to a low of 440,000 in 2000 before nearly doubling to 834,000 in 2015. With the recent plateauing of entry, we expect that number to grow only modestly in the next decade. Broadly speaking, the nurse workforce of the 2020s will be dominated by Millennials.

EXHIBIT 3

Full-time-equivalent registered nurses overall and by age group, historical and projected

SOURCE Authors' calculations and forecast model, based on data from the Current Population Survey and the American Community Survey. NOTES The exhibit does not include advanced-practice registered nurses. Dotted lines are projections after 2015.

ularly in light of the current uncertainty over the fate of the Affordable Care Act.[14]

Implications For Policy

The dynamics of the nurse workforce are strongly influenced by economic, sociodemographic, and health care delivery trends. Tracing past and projected workforce supply by generation reveals that the baby boomers passed the baton briefly to Generation X and then to a much larger group of Millennials, who have rushed into the nursing profession in unprecedented numbers. Implications of these dynamics include a transition to a younger workforce[15] and a slower rate of growth from 2015 to 2030 than the health care system has been used to since 2000. And if interest in nursing wanes in younger members of the later-Millennial generation or the following generation—as happened with the early Gen-Xers—we could again be faced with a "pig in the python" workforce cycle. Another implication is that Millennials' attachment to nursing careers could be influenced by characteristics of that generation—for example, their high propensity to switch jobs and organizations and their need for achievement and for a balance between work and life.[16] These characteristics could affect health care organizations, for whom turnover is costly.

These workforce patterns are occurring in a dynamic health care environment. Whether the projected number of RNs will be adequate also depends on the skills and education of existing and future RNs, the needs of organizations that are increasingly paid based on value and global payment formulas rather than on the number and complexity of the services they provide, and changing patterns of care that have led to reductions in inpatient utilization in many organizations. Nevertheless, a more slowly growing workforce and the loss of an experienced cohort of RNs should be on the minds of provider and payer organizations as they transition to new care delivery and payment models in the next decade. ∎

NOTES

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9 To access the Appendix, click on the Details tab of the article online.

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