

A vibrant green background filled with various medical and nursing icons. These include syringes, microscopes, stethoscopes, heart rate monitors, band-aids, pills, clipboards, and laboratory glassware. In the center, a white nurse's cap with a red cross is positioned above the word "Nursing" written in a large, yellow, cursive font.

# Nursing

## SUPPLY AND DEMAND THROUGH 2020

2015

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# *Nursing*

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## Acknowledgments

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We would like to express our gratitude to the individuals and organizations that have made this report possible. First we thank Lumina Foundation, the Bill & Melinda Gates Foundation, and the Joyce Foundation for their support of our research over the past few years. In particular, we are grateful for the support of Jamie Merisotis, Holly Zanville, Daniel Greenstein, Elise Miller, Matthew Muench, and Whitney Smith. We are honored to be partners in their mission of promoting postsecondary access and completion for all Americans.

We owe special thanks to Laura Chenven, director of the Healthcare Career Advancement Program (H-CAP), for her leadership, support, and inspiration in the production of this report. H-CAP is a national organization of major healthcare employers and Service Employees International Union (SEIU) members supporting career advancement in healthcare.

We would also like to thank Joy Laforme, the report's designer, and Tracy Thompson and Barbara Minich, the report's editors. Our thanks also go to our colleagues, whose support was vital to our success:

- Jeff Strohl and Tamara Jayasundera, who provided superb research and editorial assistance throughout,
- Andrea Porter and Ana Castanon, who provided strategic guidance in the design and production of the report and,
- Joseph Leonard and Coral Castro, who assisted with the logistics and provided overall administrative support.

Many have contributed their thoughts and feedback throughout the production of this report. That said, all errors, omissions, and views remain the responsibility of the authors.

*The views expressed in this publication are those of the authors and do not necessarily represent those of Lumina Foundation, the Bill & Melinda Gates Foundation, or Joyce Foundation, their officers, or employees.*

Nursing professionals are individuals employed in nursing professions, including registered nurses (RNs), licensed practical nurses (LPNs), and licensed vocational nurses (LVNs).

### CREDENTIALS

**1. DNP** – Doctor of Nursing Practice is a professional doctoral degree intended to establish an individual's expertise as a clinical practitioner. The DNP prepares an RN to manage acute and chronic medical conditions as a primary care provider, usually independent from a medical doctor.

**2. PhD/DNS** – Doctor of Philosophy in Nursing or Doctor of Nursing Science is a terminal research-focused degree in nursing. These are academic degrees intended for individuals who plan to be involved in teaching and research. The PhD/DNS is different from a DNP, which is a clinical degree.

**3. MSN** – Master's of Science in Nursing is a postgraduate degree for RNs who have an interest in administration or management within the nursing field. It is also a requirement for many advanced practice registered nurse (APRN) specialties and in some cases is a prerequisite for the DNP.

**4. BSN** – Bachelor of Science in Nursing is a four-year baccalaureate degree that, together with the National Council Licensure Examination-Registered Nurse (NCLEX-RN) exam, is the emerging entry-level requirement for RNs. Although not officially required, the BSN is highly favored over an Associate's degree in Nursing and as an entry-level requirement for a significant number of registered nursing opportunities.

**5. ADN/ASN** – Associate degree in Nursing/Associate of Science in Nursing are nursing degrees that are completed at a community college or university. Together with the NCLEX-RN exam, these degrees are the prerequisite for applying for licensure as an RN.

**6. Diploma** – This is an entry-level nursing credential that, together with the NCLEX-RN exam, allows one to apply for licensure as an RN. The diploma is usually awarded by hospital-based nursing programs and is slowly being replaced by other tertiary institutions, such as community colleges and nursing schools within universities. Many of the existing hospital-based programs coordinate with nearby schools to teach classes that, together with the practicum/apprenticeship-based programs in hospitals, are required to complete the diploma credential.

### OCCUPATIONS

**1. Nurse Practitioner (NP)** – an advanced practice registered nurse (APRN) who usually has completed a DNP program or a set of graduate coursework and clinical education beyond that of an RN (such as an MSN). NPs can diagnose medical conditions, order treatment, prescribe drugs, and make referrals in much the same way as physicians. In many states, NPs do not need to practice under the supervision of a physician.

**2. Certified Registered Nurse Anesthetist (CRNA)** – an advanced practice registered nurse (APRN) who usually has completed a DNP or MSN program and is board certified in anesthesia.

## *Glossary Cont.*

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**3. Certified Nurse Midwife (CNM)** – an advanced practice registered nurse (APRN) who usually has completed a DNP or MSN program and is board certified in midwifery. CNMs specialize in the provision of care for women who are not experiencing high-risk pregnancies.

**4. Clinical Nurse Specialist** – an APRN who usually has completed a DNP or MSN program in selected areas of nursing leading to board certification as a CNS. CNSs provide specialized care and are responsible for the diagnosis and treatment of health, as well as the delivery of evidence-based nursing interventions.

**5. Registered Nurse (RN)** – a nurse who has graduated from a nursing program and has passed the NCLEX-RN exam. To become an RN, one must complete at least an Associate's degree (ADN/ASN) or diploma in nursing and pass the NCLEX-RN. RNs are at the center of gravity among the nursing professions.

**6. Licensed Practical Nurse (LPN)/Licensed Vocational Nurse (LVN)** – a nursing professional who cares for people under the direction of an RN or physician. Potential LPNs/LVNs study for one to two years at a community college or a vocational/technical school and also pass the NCLEX-Practical Nurse (PN) exam. No substantive difference exists between LPNs and LVNs, except for the occupational name, which depends on the state of practice.

## *The economy will create 1.6 million job openings for nurses through 2020.*

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There are close to 3.5 million nursing professionals<sup>1</sup> in the workforce today, accounting for nearly three of every five healthcare professional and technical jobs in the country, or 57 percent of the 6.1 million jobs in healthcare professional and technical occupations. Nursing is poised to play a key role in the evolving U.S. healthcare system, especially as reforms under the Patient Protection and Affordable Care Act, commonly called the Affordable Care Act (ACA) or “Obamacare,” continue to be implemented.<sup>2</sup>

Well-developed career pathways and an expectation of strong job growth make nursing an attractive route to upward economic mobility. Aside from teachers, no other profession employs as many women, both in absolute and relative terms, as nursing. Women make up 89 percent of the nursing workforce and 85 percent of the K-12 teaching workforce. Registered nurses (RNs) are paid relatively high wages (\$68,000), compared to other female-dominated occupations, such as high school teachers (\$53,000) and elementary/middle school teachers (\$50,000).<sup>3</sup>

Moreover, many women tend to adopt nursing as a lifelong profession, choosing to move into and out of the labor market as economic and personal conditions demand. Only teachers stay in their position longer than nurses among female-dominated jobs. For example, 84 percent of teachers are still teaching 10 years out, while close to 75 percent of nurses are still in the nursing profession after 10 years.<sup>4</sup>

We project that there will be 1.6 million job openings for nurses through 2020.

Of these,

- 700,000 will be newly created opportunities, and
- 880,000 will be replacements for retiring baby boomer nurses.

The projected 1.6 million job openings can be divided further into 1.2 million openings for RNs and 370,000 openings for LPNs/LVNs.<sup>5</sup>

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<sup>1</sup> Nursing professions include RN, which also includes the advanced practice registered nurse (APRN) specialties of certified registered nurse anesthetist (CRNA), nurse practitioner (NP), certified nurse midwife (CNM), and clinical nurse specialist (CNS); licensed professional nurse (LPN); and licensed vocational nurse (LVN).

<sup>2</sup> Institute of Medicine, *The Future of Nursing: Leading Change, Advancing Health*, 2011.

<sup>3</sup> Georgetown University Center for Education and the Workforce analysis of *Current Population Survey (CPS)*, 2013. The wages presented for each occupation are average full-time, full-year wages for prime-age (25-54) workers.

<sup>4</sup> Georgetown University Center on Education and the Workforce, *Analysis of data from National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study*, 2010.

<sup>5</sup> We chose to include LPNs and LVNs in the analysis of the nursing workforce as licensed practical and vocational nurses offer important entry-level pathways to registered nursing.





*By 2020, the United States will face a shortfall of 193,000 nursing professionals.*

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Currently, the United States has the largest nursing workforce in the world. Even considering the size of our population, the United States has a higher-than-average concentration of nurses. In 2011, there were 11.1 nurses per 1,000 people in the United States, compared to an average of 8.7 nurses per 1,000 people across the world's most economically developed nations.<sup>6</sup> Norway has the highest concentration of nurses per 1,000 people, estimated at 19.5 in 2011, while Turkey has the lowest, with 1.7 nurses per 1,000 people.<sup>7</sup>

Looking forward, based on the age and makeup of the current workforce, the size of graduating nursing classes, and nurses' career decisions with regard to working in the field and pursuing additional education, we project that the active supply of nursing professionals will increase steadily from the current 3.5 million nursing professionals to 3.95 million by 2020, including over 3.2 million RNs and 703,000 LPNs/LVNs. Yet, this substantial growth in supply will not be enough to meet the demand for nursing professionals, which will be around 4.14 million by 2020. Thus, we project the nursing workforce will be facing a shortfall of roughly 193,000 nursing professionals by 2020. (See *Projecting the Supply of Nursing Professionals*, page 6, for more methodological specifics.)

So, why despite all of the growth in supply, will there still be a shortfall of 193,000 nursing professionals by 2020?<sup>8</sup>

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<sup>6</sup> Organization for Economic Cooperation and Development, *OECD Health Data 2013*, 2013.

<sup>7</sup> Organization for Economic Cooperation and Development, *OECD Health Data 2013*, 2013.

<sup>8</sup> Our shortfall estimate is based on projections of nursing demand and "active supply," workers who hold a job in the nursing field, in 2020. Health Resources and Services Administration (HRSA), using a different methodology, projects a surplus of 399,000 nursing professionals by 2025. See *Nursing: Methodology comparison* for more details.

## PROJECTING THE SUPPLY OF NURSING PROFESSIONALS

Our approach to forecasting the active supply of nursing professionals in this report is similar to the general approach in the Clinical Specialty Supply Model (CSSDM) developed by the National Center for Health Workforce Analysis, of the Health Resources and Services Administration (HRSA), in the U.S. Department of Health and Human Services (HHS). To get the projected clinician supply, we age the supply of nursing professionals forward, subtracting attrition due to mortality, disability and retirements and adding new graduates who join the nursing workforce for each year of the projections. In addition, since only 70 percent of licensed nursing professionals work in nursing, we estimated the annual probability of nursing professionals changing careers and added that to attrition. The U.S. Census Bureau's and Bureau of Labor Statistics' (BLS) *Current Population Survey (CPS)* March supplement data were used to derive the current supply of RNs and LPNs/LVNs by age (within an age range of 18-70) and sex. The base year for the supply projections is 2013, the last year for which data are available. However, since the data have to be substantially subdivided (by age and sex), five years of data 2008-2013 were pooled and averaged to provide the base-year supply.

The age and sex-specific mortality rates are based on the 2010 "Actuarial Life Table" from the Social Security Administration. The retirement and disability rates are based on newly retired and disabled

individuals (those who are currently out of the labor force due to retirement or disability and worked at least one week in prior year), using the *Current Population Survey*, March supplement, 2008-2013 pooled data.

The new-entrants estimate is based on the 2013 graduating classes of RNs and LPNs/LVNs, using National Center for Educational Statistics (NCES) *Integrated Postsecondary Education Data System (IPEDS) Completions Survey* data, reduced to account for graduates who do not enter active nursing careers (only 70 percent of licensed nursing professionals are employed in nursing), and, for RNs, the graduate degree recipients are subtracted as they likely were part of the nursing workforce prior to receiving the graduate degree.

Since data on the age and sex of new entrants are not available in IPEDS, the average annual attrition rate for new entrants was based on labor force participation rate for RNs and LPNs younger than 50 (95% for RNs and 91% for LPNs).

The projected supply for each year is based on the projected continuing supply for that year, plus the cumulative number of new entrants from the previous year. Then, in the target projection year (in this case 2020), the nursing supply is adjusted by employment status (except retired and disabled) to get active supply projections, which are 3.2 million for RNs and 702,770 for LPNs.



## *Aging of the baby boomers, more people with health insurance, and other social and economic factors have led to the pending shortages.*

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A variety of occupational and social factors has contributed to the scarcity of nurses. The growing and aging U.S. population, increased healthcare coverage, rising disposable incomes, and changing healthcare delivery models all have contributed to the steady growth in demand for nursing services.<sup>9,10</sup> Moreover, an aging workforce, a demanding job environment, and

inconsistent wages and wage increases have contributed to many qualified nurses exiting the profession. In addition, recruitment, training, and retention continue to be significant challenges. As a result, in rural areas, especially in western and southwestern states, nursing shortages continue to be a challenge for employers and patients.

## *The demand for healthcare services, including nursing, is growing.*

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Healthcare accounts for 18 percent of the U.S. economy. That share is expected to keep growing, albeit at a slower pace than it had been during the decade preceding the Great Recession of 2008, and the expectation is that healthcare will reach 20 percent of the gross domestic product (GDP) by 2020.<sup>11</sup> The primary reason for this growing demand is changing demographics. Between today and 2030, more than 70 million baby boomers will be crossing into the over-65 age group - the segment of the population that accounts for 34 percent of all surgical procedures, 26 percent of all physician office visits, and 90 percent of all nursing home residents.<sup>12</sup> Nursing plays a major role in all these services, as well as others utilized by older adults, such as home care, hospital services, and rehabilitation.

Another reason for the growing demand is the expansion of coverage, through both the state and federal health insurance exchanges and Medicaid expansion in roughly half of the states under the ACA. (See box on Obamacare, for more details.) While we still don't know the extent to which the increase in coverage will translate into the greater utilization of services, it is safe to assume that individuals who gain health insurance coverage will utilize more healthcare services than they did when they were uninsured, and therefore will contribute to the growing demand for healthcare.

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<sup>9</sup> Health Resources and Services Administration, *What Is Behind HRSA's Projected Supply, Demand, and Shortage of Registered Nurses?*, 2004.

<sup>10</sup> Health Resources and Services Administration, *National Sample Survey of Registered Nurses (NSSRN) 1980-2008*, 2010.

<sup>11</sup> Carnevale, et al., *Healthcare*, 2012.

<sup>12</sup> Ricketts, "The Healthcare Workforce," 2011: 417-430.

## OBAMACARE

The Affordable Care Act (ACA), popularly known as Obamacare, will have a significant impact on the capacity and training of the nursing workforce in ways both direct and indirect. The ACA increases financial resources to allow for greater enrollment and program completion by nurses. Indirectly, the ACA also influences the demand for healthcare services and how care is delivered, and thus the demand for nurses.

The ACA is expected to increase the number of nurses by addressing bottlenecks in nursing education through a combination of grants, loans, and loan repayment programs. These include nursing education and practice and retention grants, which among other things are aimed at expanding enrollment in BSN programs and increasing the use of new technology, including distance learning methods. Obamacare also intends to promote nursing practice arrangements in non-institutional settings, such as home healthcare, as a way to improve access to primary care for underserved and high-risk groups, such as the elderly, the homeless, patients with Human Immunodeficiency Virus Infection/Acquired Immunodeficiency Syndrome (HIV/AIDS), and victims of domestic violence.

The retention areas covered by the grants encompass career ladder programs that help nursing students earn their degrees and nursing professionals advance in their careers with the provision of tutoring and articulation agreements for easing credit transfer among colleges and universities. In addition, Obamacare also funds

programs developed collaboratively among healthcare institutions and schools of nursing that are designed to encourage mentorship and the development of nursing specialties, as well as programs to enhance the involvement of nurses in the clinical and organizational decision-making within healthcare organizations.<sup>13</sup>

Other provisions in the ACA attempt to remedy the shortage of nursing faculty. For example, the law expands eligibility for the Nurse Loan Repayment and Scholarship Program (NLRP), formerly limited to nursing students, to include nursing professionals already in the workforce who, in lieu of repaying their student loans, commit to working for at least two years as faculty members at accredited nursing schools. The law increases the pool of money available for federally funded student nursing loans, and adds a new program that provides loan repayment of up to \$10,000 for MSN graduates and \$20,000 for doctoral nursing graduates who serve as full-time faculty in accredited nursing schools for four out of six years following their graduation or entry into the program. The legislation also increases funding for more hospital-based graduate nursing education programs, as well as nurse-managed health centers (NMHCs), which are federally funded health centers providing care to underserved populations, managed by APRNs who are affiliated with an academic institution, a qualified health center, or a nonprofit.

<sup>13</sup> Health Resources and Services Administration, *Nurse Education, Practice and Retention Grants, 2012*.

What all these efforts will mean in the long run is hard to predict. The law's basic purpose is to offer affordable health insurance to the poor and uninsured, which in theory will increase overall demand for healthcare services.

During the 2013-2014 enrollment period, over 8 million people signed up for health insurance through the federal and state exchanges, accounting for less than one-fifth of the more than 40 million people without health insurance. However, that was the first year of the program, and even with the well-publicized problems with the federal and some state exchanges' website portals, the number of sign-ups exceeded early projections, in large part due to the extension of the deadline for signing up. In addition, Medicaid and Children's Health Insurance Program (CHIP) enrollment grew by close to 5 million people, in part due to 24 states and the District of Columbia adopting the coverage expansion enacted under the ACA to include adults with incomes up to 133 percent of the federal poverty level.<sup>14</sup>

Even before the ACA, the healthcare industry was moving away from in-patient hospital care – traditionally the largest employer of nurses – and toward ambulatory and community-based care; the new law is likely to bolster these trends. In the relatively short time since Obamacare was signed into law, nursing employment in the ambulatory care sector has grown by 23 percent, while the number of hospital-employed nurses has declined by 2 percent.<sup>15</sup> With continued pressure on hospitals to cut costs and the growth of new delivery models, including medical homes, accountable care organizations, community health centers, nurse-managed health centers, pharmacy clinics, episode-based care, remote and web-based healthcare services, and so on,<sup>16</sup> nurses can expect this shift away from hospital employment to continue.

<sup>14</sup> Centers for Medicare and Medicaid Services. *Medicaid & CHIP: March 2014 monthly applications*, May 1, 2014.

<sup>15</sup> Georgetown University Center for Education and the Workforce analysis of Bureau of Labor Statistics, *Current Population Survey (CPS) 2010-2012 (pooled data)*.

<sup>16</sup> For information on new emerging models of care promoted under the Obamacare reforms, see Carnevale, et al., *Healthcare*, 2012: 19.



*An economic recovery both increases demand for and reduces the supply of qualified nurses.*

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As shown in Figure 1, many qualified nurses who are licensed to practice choose not to work in the profession. Nursing is a middle-of-the-road occupation in terms of tenure. We estimate that between 70 and 75 percent of nurses with a Bachelor's degree remain in the profession by mid-career compared to 85 percent of teachers, 77 percent of engineers, and 62 percent of business managers. Moreover, an AMN Healthcare 2013 survey finds that 23 percent of nurses 55 and older will retire, change career, or switch to part-time as the economy continues to improve.<sup>17</sup>

Stressful working environments, along with long hours and erratic schedules in some nursing positions, contribute to many nurses moving in and out of the field based on economic conditions and personal circumstances. Among prime-age (25-54) RNs with an active RN license, 44 percent of those who do not work in nursing indicate that workplace-related issues, such as burnout, scheduling, the physical demands of the job, inadequate staffing, and low pay relative to other opportunities contributed to their decision to leave nursing.

Further, 15 percent of RNs who do not work in nursing specifically identify low pay in nursing or better salaries elsewhere as one of the reasons for leaving nursing.<sup>18</sup> RNs who leave nursing are most likely to work in other health-related services; retail sales and services; education; or pharmaceutical, biotechnology, or medical equipment fields.

There is a cyclical component to the workers' decisions to leave nursing or to return to nursing. In tight labor markets, job security and relatively high wages act as an incentive to draw qualified nurses back to the profession. As the labor market starts recovering and more opportunities become available elsewhere, some nurses will leave the profession for jobs they find more preferable.

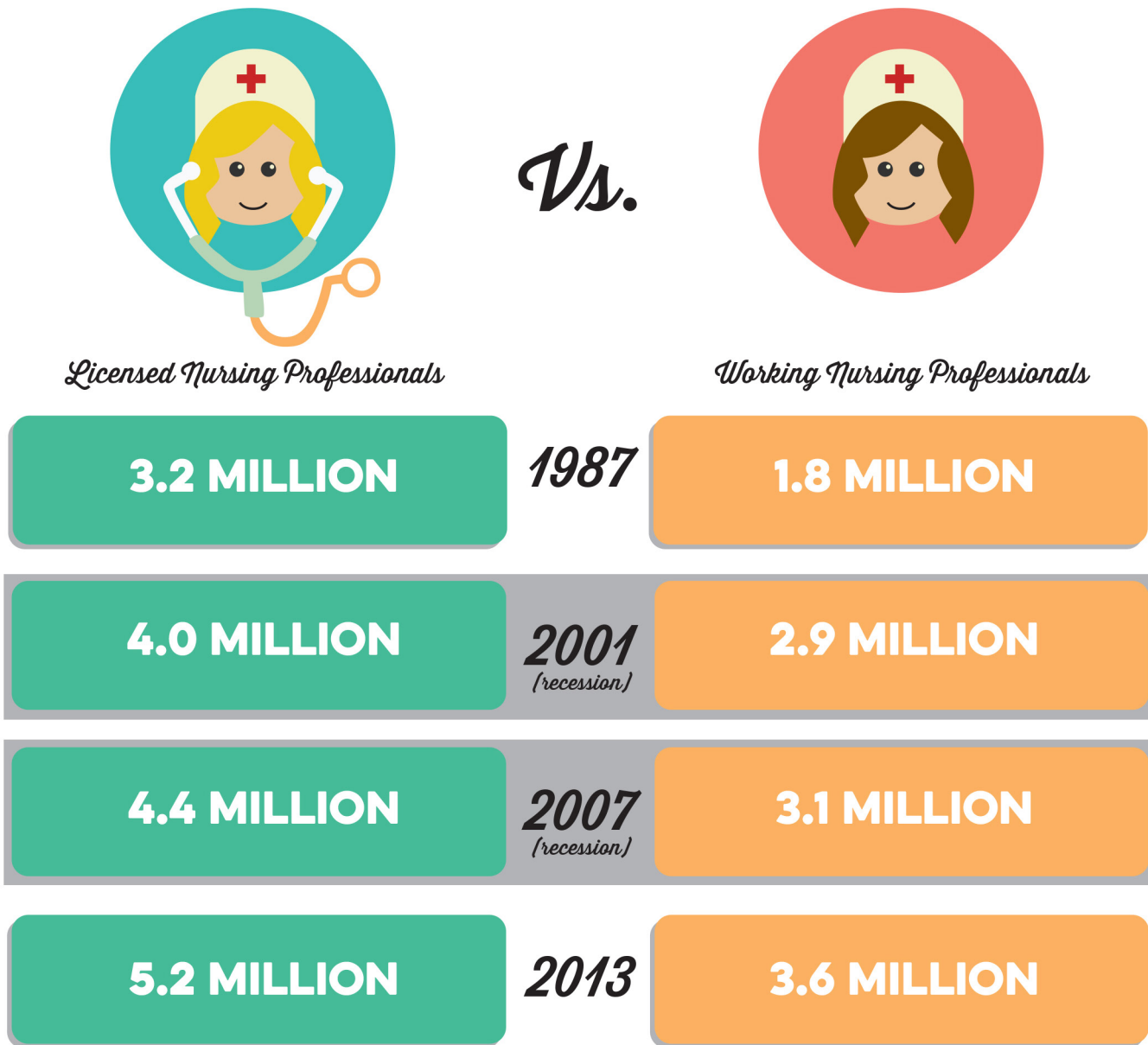
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<sup>17</sup> AMN Healthcare, Inc., *Healthcare's 2013 Survey of Registered Nurses: Generation Gap Grows as Healthcare Transforms*, 2013.

<sup>18</sup> Georgetown University Center on Education and the Workforce analysis of Health Resources and Service Administration, *National Sample Survey of Registered Nurses, 1980-2008*.

*Figure 1.* A substantial number of licensed nurses are not working in the profession.

- NUMBER OF LICENSED AND WORKING NURSING PROFESSIONALS (1987-2013):



Source: Georgetown University Center on Education and the Workforce (CEW) analysis of data from *National Council of State Boards of Nursing (NCSBN); Nursing Licensure Volume; and National Council Licensure Examination (NCLEX) Examination Statistics* publication, 1988-2013; and U.S. Census Bureau, *Current Population Survey (CPS)* data, 1987-2013.

Note: The total number of working nursing professionals includes RNs and LPNs/LVNs.

Note: For RNs with a Bachelor's degree, the likelihood of remaining in the nursing field is 70 to 75 percent.<sup>19</sup>

<sup>19</sup> Georgetown University Center for Education and the Workforce analysis of data from the *American Community Survey (ACS)*, 2009-2012 (pooled), and the *Baccalaureate and Beyond Longitudinal Study (B&B)*, 1993-2003.



## *The end of the Great Recession will signal more nursing shortages.*

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Many of the earlier cases supporting the existence of nursing shortages preceded the Great Recession, and the trends will likely reassert themselves after the recovery reaches full employment, which is projected for 2017. For example, in a 2004-05 survey of hospital executives, 68 percent of chief executive officers (CEOs) and 74 percent of chief nursing officers (CNOs) already perceived a “very serious” or “somewhat serious” nursing shortage affecting their hospitals.<sup>20</sup> As the recession cut jobs across the board, weakened investment portfolios, lowered consumer confidence, and limited access to credit, many qualified nurses delayed retirement, re-entered the workforce, or switched back to nursing after previously changing occupations due to economic circumstances. In addition, younger workers, enticed by the perceived job security and good wages, entered the profession as quickly as slots became available.

The Great Recession, therefore, to a large extent mitigated the impact of the nursing scarcity. In effect, the recession increased the supply of active nurses in the workforce.<sup>21</sup>

According to Buerhaus et al. (2009), hospital employment of RNs increased by an estimated 243,000 full-time equivalents (FTEs) in 2007 and 2008 – the largest increase during any two-year period in the past four decades. Since then, nursing employment has steadily increased to 3.5 million nursing professionals working in the field.<sup>22</sup>

Over the past three years, nursing had one of the lowest unemployment rates of all occupations. Recent graduates with BSN degrees saw a 4.8 percent unemployment rate, while experienced BSN nurses saw a 2.3 percent unemployment rate. Graduate degree holders in the nursing profession had unemployment rates of 1.7 percent, on average.<sup>23</sup>

As the recovery trudges along, unemployment rates continue to decline, and the ACA enters its full implementation, the nursing shortage problem is expected to resurface. This is because the demand for nurses is expected to increase as qualified nurses exit the labor force in better economic times. The ACA will require a greater number of RNs, especially those with Bachelor’s degrees, to provide healthcare services to millions of newly insured people. Healthcare facilities are expected once again to demand more nurses, to care for the newly insured patient population, and to improve patient outcomes in line with reforms under the ACA. Reports by the Agency for Healthcare Research and Quality (AHRQ) have linked nurse staffing levels with key patient outcomes, including hospital-related mortality, length of stay, hospital-acquired infections, and unintended hospital readmissions.<sup>24,25</sup>

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<sup>20</sup> Buerhaus, et al., “Impact of the Nurse Shortage on Hospital Patient Care: Comparative Perspectives,” 2007: 853-862.

<sup>21</sup> Buerhaus, et al., “The Recent Surge In Nurse Employment: Causes And Implications,” 2009: w657-w668.

<sup>22</sup> Georgetown University Center on Education and the Workforce, analysis of *Current Population Survey March Supplement* data, 2013. See Unicon Research Corporation, *CPS Utilities*, 2014.

<sup>23</sup> Carnevale Anthony P., and Ban Cheah. *Hard Times: College Majors, Unemployment and Earnings*. Washington, D.C.: Center on Education and the Workforce, analysis of Current Population Survey March Supplement Data, 2013. <http://cew.georgetown.edu/unemployment2013>.

<sup>24</sup> Kane, et al. “Nurse Staffing and Quality of Patient Care,” March 2007.

<sup>25</sup> Seago, “Nurse Staffing, Models of Care Delivery, and Interventions,” July, 2001.





## *The nursing workforce is aging.*

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While today less than 14 percent of U.S. residents are over the age of 65, by 2030, more than 20 percent are expected to be in that age group, an increase of more than 6 percentage points.<sup>26</sup> The aging population will increase the demand for nursing services and reduce the supply of nursing professionals simultaneously. The reduction in supply will be driven by the retirement of baby boomer nurses. Baby boomer nurses currently comprise more than 1.1 million nursing professionals, constituting over a third of RNs and LPNs/LVNs.<sup>27</sup> The average age of an RN is now 45 and the average age of an LPN/LVN is 43. Nursing professionals over the age of 40 now make up the majority of the workers in the field, accounting for 62 percent of all RNs and 59 percent of all LPNs/LVNs.

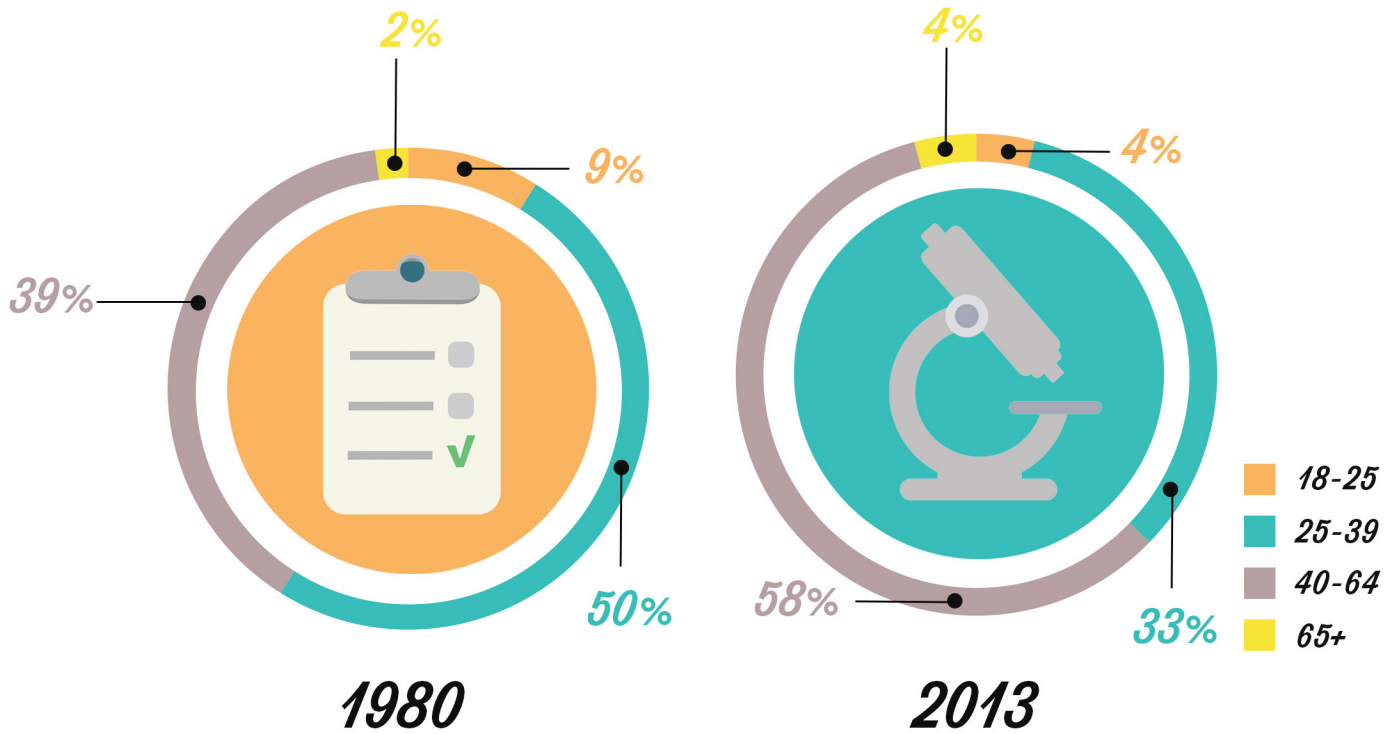
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<sup>26</sup> Ortman, et al., “An Aging Nation: The Older Population in the United States,” May 2014.

<sup>27</sup> Georgetown University Center on Education and the Workforce, analysis of *Current Population Survey March Supplement* data, 2013. See Unicon Research Corporation, *CPS Utilities*, 2014.

**Figure 2.** Nurses 40 and older have become the majority of the workforce.

- RNs BY AGE, 1980-2013:



Source: Georgetown University Center on Education and the Workforce analysis of U.S. Census Bureau, *Current Population Survey (CPS)* data, 1980-2013.

Percentages may not total 100 due to rounding.

## *Nursing has a relatively demanding job environment.*

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Staff nurses in hospitals are facing a growing number of challenges, including an aging population, resulting in sicker patients, tighter budgets, fear of punitive action for making an error, physical and psychological pressures of shift work, everyday physical demands, and the challenge of keeping up with ever-changing technologies. These factors, combined with infrequent or unpredictable wage increases, have created a toxic level of stress. The trend toward shorter hospital stays and patients with more severe health conditions has increased the intensity of the nursing care provided in hospitals and thereby has contributed to a more strenuous work environment for nursing professionals.<sup>28</sup> Further, this trend has had a cascading effect on nurses throughout the healthcare

system, with patients who once were treated in hospitals now being cared for in rehabilitative, outpatient, and home care settings.

In addition, pressure to minimize costs has reduced the incentive for healthcare organizations to invest in RN staffing beyond the bare minimum.<sup>29,30</sup> Insufficient staffing levels, long work shifts, a punitive organizational culture, and inadequate investments in the orientation and training of new nurses have put stress on the nursing staff and have been found to be detrimental to patient safety.<sup>31</sup> Also, in some instances, the excessive documentation nurses are expected to do takes time away from focusing on monitoring patients.

## *Government programs increase supply, but also put downward pressure on wages.*

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Government programs, created with the aim of easing the nursing shortage, have in some cases resulted in unintentional consequences. Grants, scholarships, tuition vouchers, and loan reimbursements, designed to lower the cost of a nursing education, have also tended to depress starting wages. This is because nursing graduates who receive subsidized education through these programs are willing to, or in some cases are required to,<sup>32</sup> work for lower starting wages than they would without the subsidies.<sup>33</sup> As a result, starting wages

for all nursing graduates are lower, including for those who did not receive a subsidy for their education through the government programs. So, while the government programs are increasing incentives for students to go into nursing by reducing the cost of their education, these programs also potentially reduce the incentives for non-participants. Moreover, programs often do not require participants to stay in the nursing profession beyond the first two years following graduation, so they do little to address the issue of attrition among RNs.

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<sup>28</sup> Institute of Medicine, *Keeping Patients Safe: Transforming the Work Environment of Nurses*, 2004.

<sup>29</sup> As part of healthcare reform implementation, including changes in payment mechanisms that reward positive patient outcomes, hospitals will have stronger incentives to invest in their nursing workforce.

<sup>30</sup> Fox and Abrahamson, "A Critical Examination of the U.S. Nursing Shortage," October 2009, 235-244.

<sup>31</sup> Institute of Medicine, *Keeping Patients Safe: Transforming the Work Environment of Nurses*, 2004.

<sup>32</sup> Some programs require nurses to work in nursing shortage areas and/or to work for specific institutions in exchange for receiving tuition vouchers, grants, or scholarships. This reduces competition among employers and also tends to depress starting wages, in particular in nursing shortage areas where employers feel less pressure to increase wages due to easier access to nursing graduates through the government programs.

<sup>33</sup> Elgie, "Politics, Economics, and Nursing Shortages," 2007, 285-292.



## *Recruitment is increasing.*

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Recruitment has become less of a challenge in recent years, with more young people interested in entering the nursing profession.<sup>34</sup> Between 1980 and 2008, the number of applications to nursing schools increased by over 80 percent.<sup>35</sup> While the profession still faces challenges attracting men and racial and ethnic minorities, much progress has been made with regard to making nursing an attractive career choice to an increasingly diverse pool of students.

## *Nursing schools lack adequate faculty, facilities, and clinical placement sites to train enough students to meet the growing demand.*

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Despite the growing interest in the nursing field, BSN programs rejected 37 percent (58,327) of qualified applicants and Associate's degree nursing programs rejected 51 percent of qualified applicants in 2011-2012 (Figure 3).<sup>36,37,38</sup> The reasons for the high rejection rates are complicated. As Carnevale et al., (2012) point out, nursing schools lack adequate faculty and facilities to move enough students through the pipeline quickly enough to meet the growing demand.<sup>39</sup>

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<sup>34</sup> Buerhaus, et al., "Projections of the Long-Term Growth of Registered Nurse Workforce," 2013.

<sup>35</sup> National League for Nursing, *Annual Survey of Schools of Nursing, 2007-2008*, 2008.

<sup>36</sup> The definition of "qualified" differs from program to program, but usually includes the completion of prerequisite coursework, a certain grade point average (GPA), a certain SAT/ACT score, a sufficient score on the Test of Essential Academic Skills (TEAS) or similar entry exam for nursing programs, having received the required immunizations and completed a health exam and some type of background check.

<sup>37</sup> Fang, et al., *2011-2012 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing*, 2012.

<sup>38</sup> National League for Nursing, *Annual Survey of Schools of Nursing, Fall 2011*, 2012.

<sup>39</sup> Carnevale, et al., *Healthcare*, June 2012.

*Figure 3.* Despite high number of applicants to nursing schools, both ADN/ASN and BSN nursing programs fall short of meeting demand.

- BACHELOR'S DEGREE IN NURSING (BSN) AND ASSOCIATE'S DEGREE IN NURSING (ADN/ASN) PROGRAMS REJECTED QUALIFIED APPLICANTS IN 2011-2012:

*37% Rejected Applicants*




*Bachelor's nursing programs*

*51% Rejected Applicants*



*Associate's nursing programs*

Sources: Georgetown University Center for Education and the Workforce analysis of American Association of Colleges of Nursing, *2011-2012 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing* (see Fang et al., 2012); and National League for Nursing, *Annual Survey of Schools of Nursing, Fall 2011, 2012*.



One of the contributing factors has been the move of nursing education out of the hospitals and into colleges and universities. When nursing education was provided mainly through hospital-based diplomas, hospitals relied on nursing students to provide patient care and to support staff RNs as part of their training. Nursing students had mentors and trainers in the form of hospital staff RNs, and nursing faculty did not have to give up clinical opportunities in order to take on teaching roles. With nursing education shifting to colleges, hospitals can't rely as much on nursing students and nursing schools have problems finding practice facilities for their students and with faculty recruitment.

Figure 4 illustrates the most important obstacles to the expansion of the nursing profession, namely the lack of enough educational facilities to accept all qualified students and, more importantly, the lack of enough faculty and clinical placement sites.<sup>40,41,42</sup> The opportunity cost of not investing in infrastructure and not providing sufficient subsidies for teachers in nursing are sure to have serious implications for access to care, especially for the increasing numbers of newly insured individuals.

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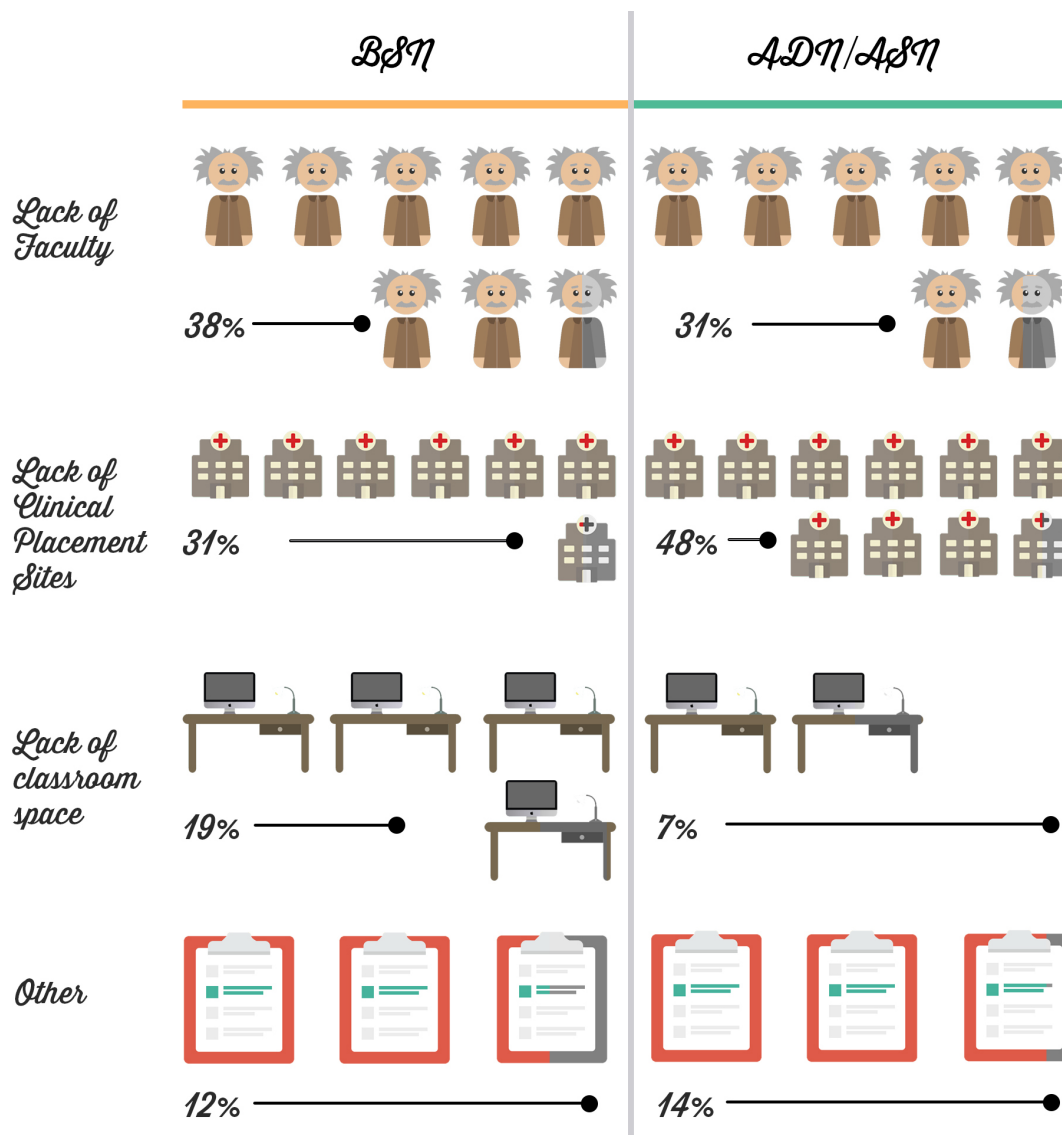
<sup>40</sup> Fang, et al., *2011-2012 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing*, 2012.

<sup>41</sup> National League for Nursing, *Annual Survey of Schools of Nursing, Fall 2011*, 2012.

<sup>42</sup> Fang, et al., *2011-2012 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing*, 2012.

**Figure 4.** The lack of facilities, the lack of faculty, and the lack of clinical placements are the major hurdles to training more nurses.

SHARE OF PROGRAMS FACING OBSTACLES TO EXPANDING CAPACITY IN NURSING:



Source: National League for Nursing, *Annual Survey of Schools of Nursing, Fall 2011, 2012.*

The reasons behind the shortage of nursing faculty are complex and multidimensional, but they include a lack of interest in teaching careers among nurses and nursing students who have a variety of opportunities available both within and outside of clinical practice. Another factor is that the long clinical experience necessary to qualify to enter the academic field delays the entry of nurses

who do opt for a teaching career. Other reasons include the uncertain level of student enrollments; the relatively low pay for academic jobs compared to other opportunities available to nurses with graduate education; long clinical experience required for teaching positions; early retirement, or career changes by faculty members dissatisfied with their jobs; and the lack of sufficient institutional funding to establish additional faculty positions.<sup>43</sup>

<sup>43</sup> Yordi, *The Nursing Faculty Shortage: A Crisis for Health Care*, 2006.

The inflation-adjusted average salary for an RN in an instructor position in 2008 was only \$61,055.<sup>44,45</sup> Although teaching salaries have risen since then – to \$88,484 for a nursing faculty member in a Bachelor’s degree or graduate program and to \$72,210 for nursing educators in instructor positions – as of 2011, these pay levels were not as high as what RNs with a graduate education could earn in management, as a nurse practitioner (NP) or certified nurse midwife (CNM), or as a certified registered nurse anesthetist (CRNA).<sup>46,47</sup>

Even if academic pay levels increase, rising professional standards make a doctoral degree increasingly necessary for a teaching career. Yet, as of the 2011-2012 academic year, only 33 percent of all nursing faculty had doctoral preparation in nursing (Figure 5).<sup>48</sup> The result is a catch-22: to produce more doctoral-level RNs, the system needs more RNs with doctoral degrees. The problem is exacerbated by the fact that nursing faculty who have doctoral degrees now also educate baccalaureate and graduate RN students, which gives them even less time to teach students in advanced doctoral programs. Only 14 percent of nursing faculty spend time educating nursing students in PhD and Doctor of Nursing Practice (DNP) programs (Figure 6).<sup>49,50</sup>

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<sup>44</sup> Georgetown University Center for Education and the Workforce analysis of *National Sample Survey of Registered Nurses (NSSRN)* 2008 from the Health Resources and Services Administration.

<sup>45</sup> Georgetown University Center for Education and the Workforce analysis of the American Association of Colleges of Nursing, *2011-2012 Salaries of Instructional and Administrative Nursing Faculty in Baccalaureate and Graduate Programs in Nursing*. (See Fang, et al., *2011-2012 Salaries of Instructional and Administrative Nursing Faculty in Baccalaureate and Graduate Programs in Nursing*, 2012.) “Instructor” here refers to entry-level rank in academic faculty nursing positions, as opposed to assistant professor, associate professor, or professor rank. By contrast, in NSSRN data, “instructor” refers to all RNs who identified themselves as holding any instructor position, regardless of the rank. NSSRN data also include nursing instructors in Associate’s degree and diploma programs.

<sup>46</sup> Georgetown University Center for Education and the Workforce analysis of *National Sample Survey of Registered Nurses (NSSRN)* 2008 from the Health Resources and Services Administration.

<sup>47</sup> Georgetown University Center for Education and the Workforce analysis of the American Association of Colleges of Nursing, *2011-2012 Salaries of Instructional and Administrative Nursing Faculty in Baccalaureate and Graduate Programs in Nursing*.

<sup>48</sup> Fang, et al., *2011-2012 Salaries of Instructional and Administrative Nursing Faculty in Baccalaureate and Graduate Programs in Nursing*, 2012.

<sup>49</sup> Georgetown University Center for Education and the Workforce analysis of *National Sample Survey of Registered Nurses (NSSRN)* 2008 from the Health Resources and Services Administration.

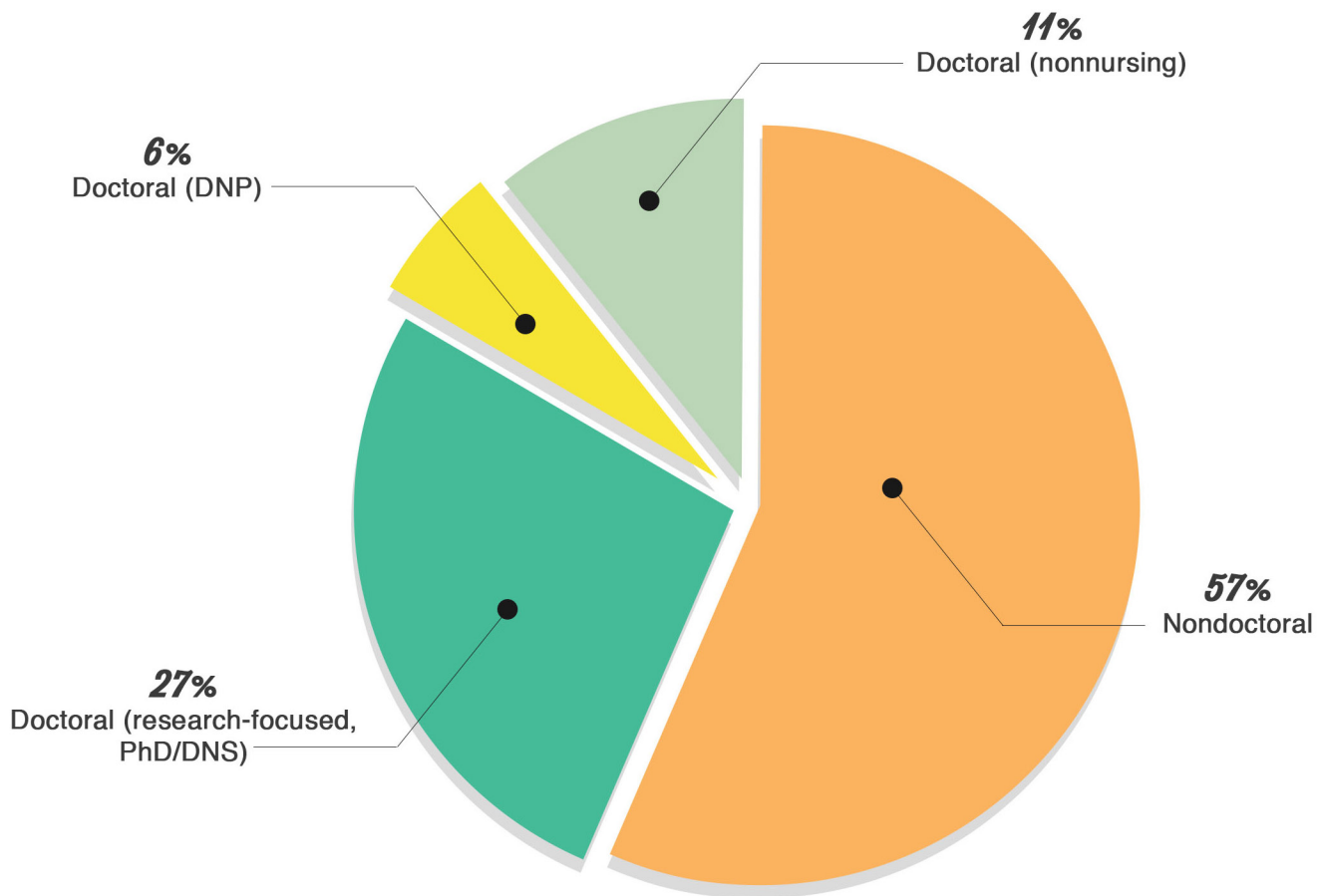
<sup>50</sup> Georgetown University Center for Education and the Workforce analysis of the American Association of Colleges of Nursing, *2011-2012 Salaries of Instructional and Administrative Nursing Faculty in Baccalaureate and Graduate Programs in Nursing*.



*While the demand for more educated nurses is on the rise, the supply cannot keep up due to rising demands on the limited number of doctoral nursing faculty.*

**Figure 5.** Only 33 percent of nursing faculty have doctoral preparation in nursing.

- SHARE OF NURSING FACULTY WITH DOCTORAL AND NONDOCTORAL PREPARATION:



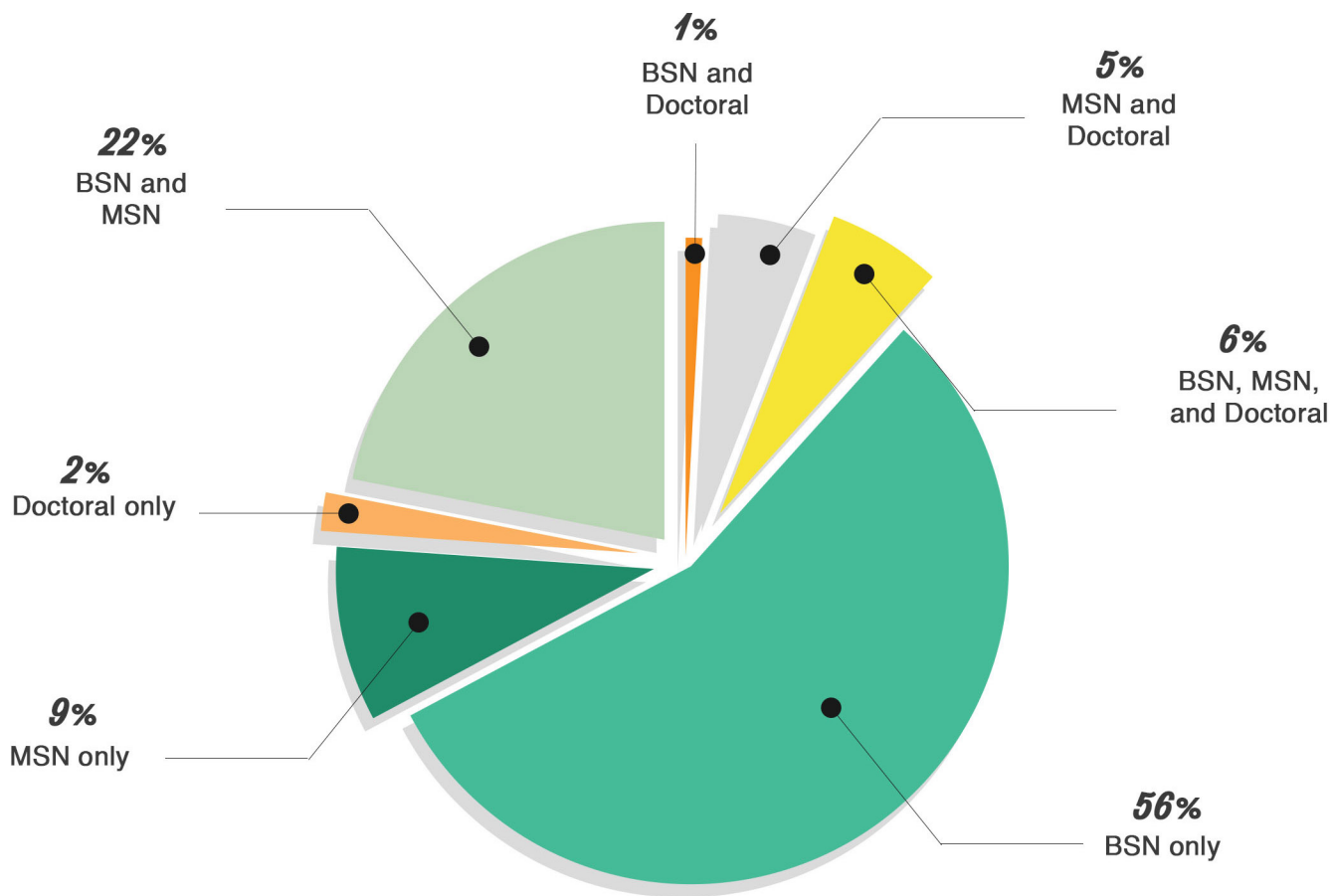
Source: Georgetown University Center on Education and the Workforce analysis of American Association of Colleges of Nursing, *2011-2012 Salaries of Instructional and Administrative Nursing Faculty in Baccalaureate and Graduate Programs in Nursing, 2012*.

\*Percentages may not total 100 due to rounding.

*Doctoral nurses cannot train enough new doctoral nurses and more BSN and MSN nurses at the same time.<sup>51</sup>*

**Figure 6.** Only 14 percent of nursing faculty spend time preparing new doctoral nursing graduates.

• LEVEL OF TEACHING FOR NURSING FACULTY:



Source: Georgetown University Center on Education and the Workforce analysis of American Association of Colleges of Nursing, *2011-2012 Salaries of Instructional and Administrative Nursing Faculty in Baccalaureate and Graduate Programs in Nursing*, 2012.

Percentages may not total 100 due to rounding.

The heavy workloads imposed on the limited number of doctoral nursing faculty lead to job dissatisfaction and departure among nursing instructors. Nearly half of all nursing faculty express dissatisfaction with the workload,

and more than one-fourth of those likely to leave the nursing faculty say the high workloads are one of the reasons for their decision.<sup>52</sup>

<sup>51</sup> Doctoral nursing education includes research-focused PhD and DNS programs and practice-focused DNP programs.

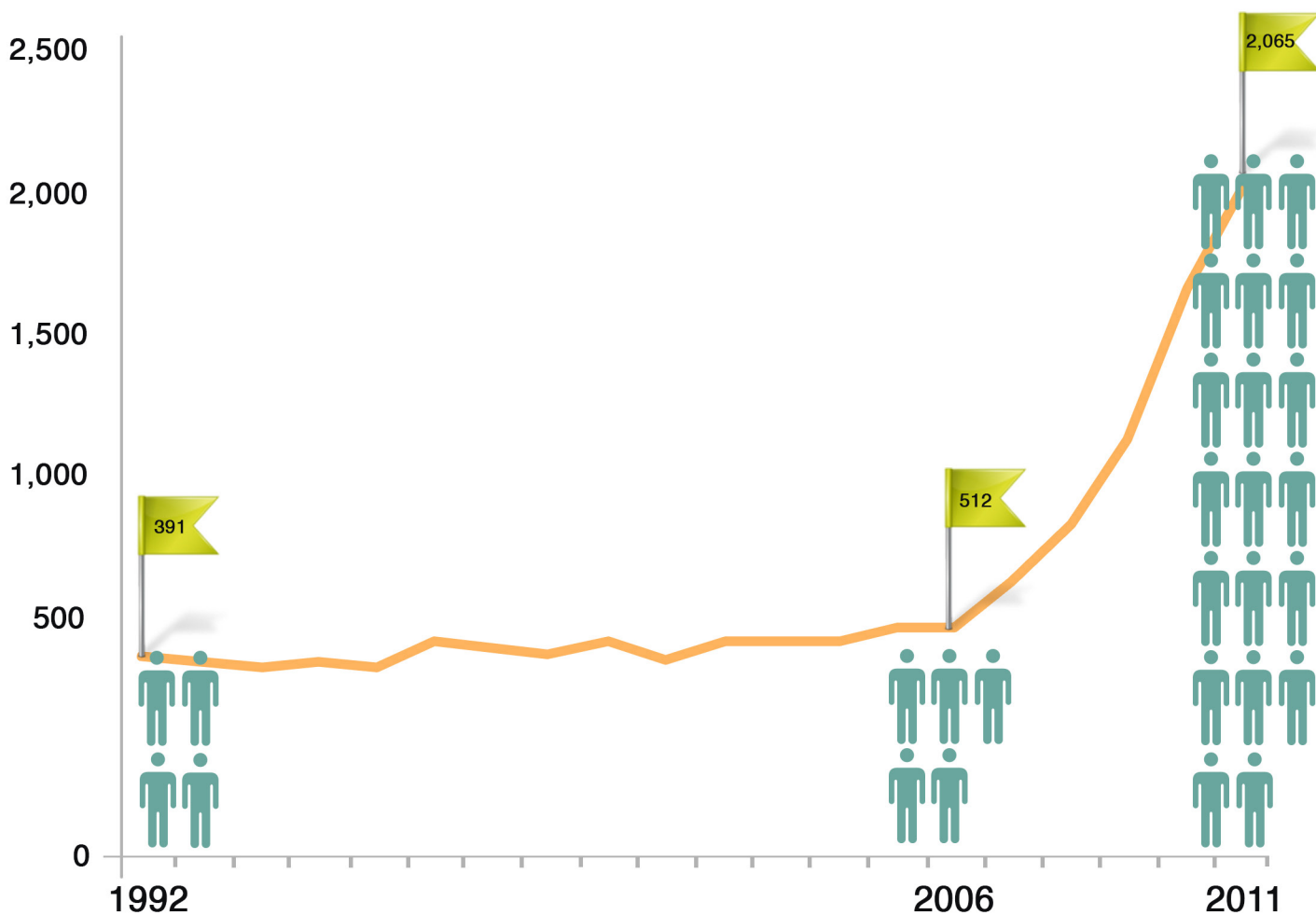
<sup>52</sup> Joynt and Kimball. "Blowing Open the Bottleneck," May 2008.

Still, recent trends offer some hope. The number of RNs in instructor positions grew 53 percent between 2004 and 2008, the highest growth of any four-year period since 1980.<sup>53</sup>

Even more encouraging, the number of doctoral graduates in nursing has been steadily rising, from 512 in 2006 to 2,065 in 2011 (Figure 7).<sup>54</sup>

**Figure 7.** The number of doctoral nursing graduates has been increasing steeply since 2006.

• DOCTORAL RN GRADUATES, 1992-2011:



Source: Georgetown University Center on Education and the Workforce analysis of the National Center for Education Statistics' *Integrated Postsecondary Education Data System (IPEDS) Completions Survey, 1992-2011*.

<sup>53</sup> Georgetown University Center on Education and the Workforce analysis of Health Resources and Services Administration (HRSA), *National Sample Survey of Registered Nurses (NSSRN)*, 1980-2008.

<sup>54</sup> Georgetown University Center on Education and the Workforce analysis of National Center for Educational Statistics (NCES), *IPEDS Completions Survey, 1992-2011*.



## *Changes in immigration legislation are affecting supply.*

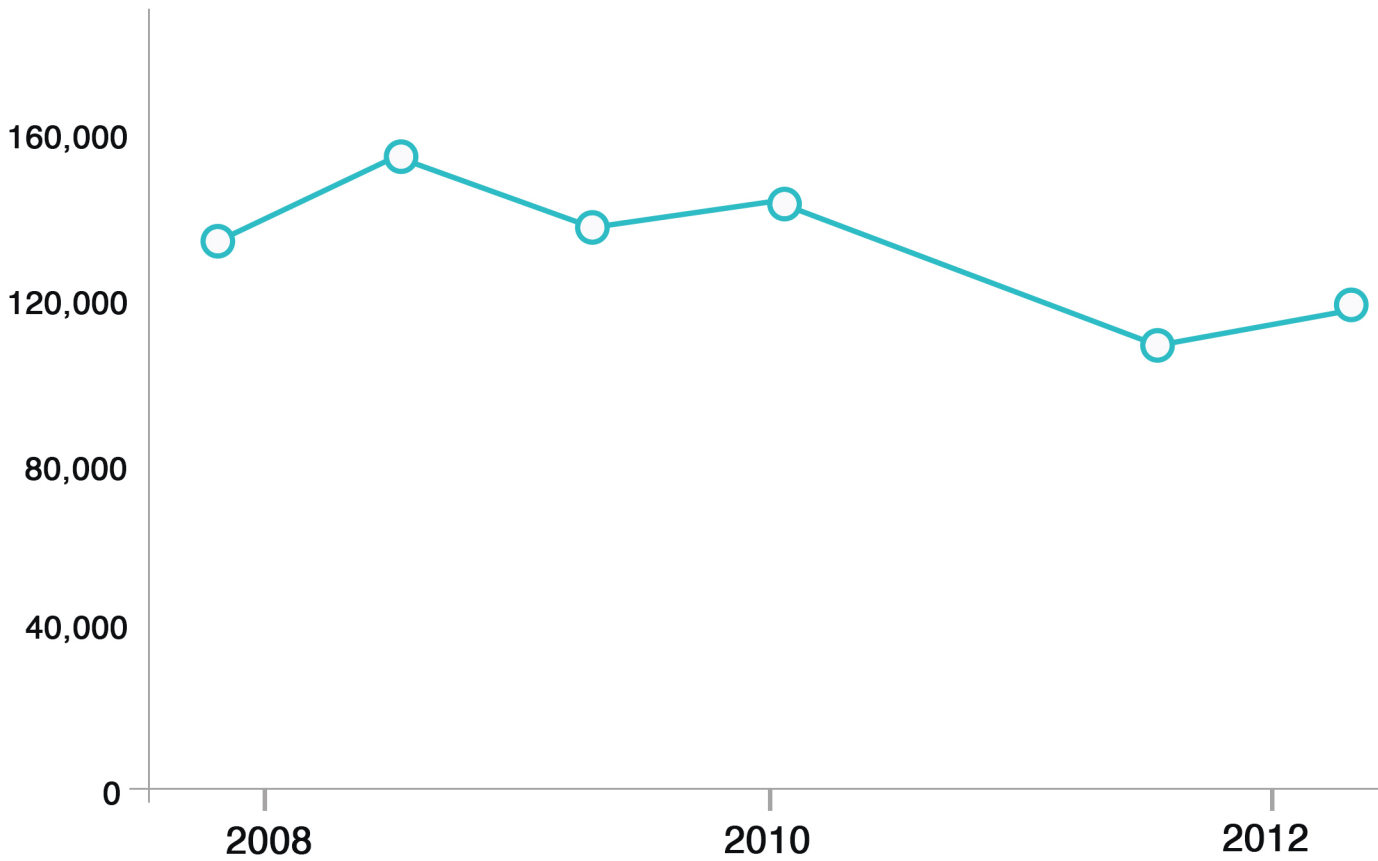
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A temporary drying up of the supply of international nurses also has put a damper on the supply of qualified nurses. In the past, the United States relied heavily on importing nurses from countries such as the Philippines, which produces three times as many nurses as it actually needs. Favorable immigration policies made the United States a good alternative to absorb other countries' excess supply. But the number of foreign RNs applying for work visas has contracted by nearly a third since the beginning of the most recent economic downturn. With the 2009 expiration of the 1999 H-1C visa program, which allowed foreign nurses to fill shortages as determined by the U.S. Department of Labor, the United States can no longer look to other countries to help with shortages.

As shown in Figure 8, the supply of foreign nurses tends to rise during periods of prosperity and to fall during recessions. The last recession, however, was an exception to that rule. Though the recession officially ended in June 2009, the United States has not seen the expected upward shift in the demand for nurses or a rise in the demand for visas to fill nursing positions.

*Figure 8.* The number of foreign (noncitizen) nurses in the United States has been in decline since the beginning of the Great Recession of 2008.

FOREIGN RNS IN THE UNITED STATES:



Source: Georgetown University Center on Education and the Workforce analysis of U.S. Census Bureau, *Current Population Survey (CPS)* data, 1994-2012.

### **NORTH DAKOTA TOPS THE NATION IN THE NUMBER OF NURSES PER 1,000 RESIDENTS.**

The distribution of nursing professionals substantially varies by state, as does their role in each state's healthcare workforce. On average, there are 12 nurses per 1,000 people in the United States, but that varies from 17 nurses per 1,000 residents in North Dakota to eight nurses per 1,000 residents in Nevada. North Dakota, Washington, D.C., and Rhode Island have the highest concentrations of nursing professionals, while California, Georgia, and Nevada have the lowest, as shown in Figure 9.

### **BY 2020, ROUGHLY ONE-FOURTH OF ALL JOB OPENINGS IN NURSING WILL BE IN CALIFORNIA, NEW YORK, AND TEXAS.**

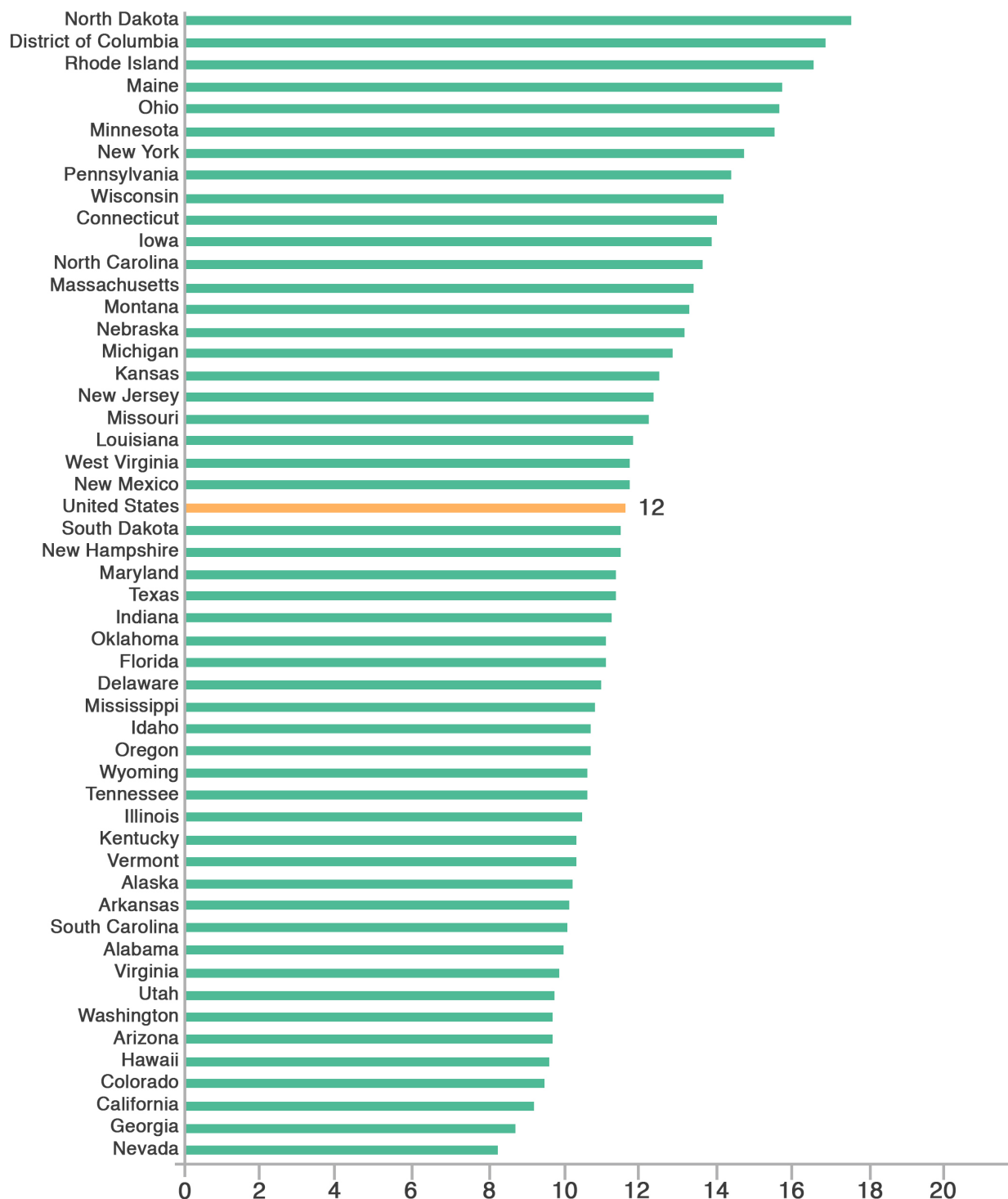
Large states, like California, New York, and Texas, award the greatest number of nursing degrees. Altogether, the three states account for 20 percent of all nursing degrees in this country. Not surprisingly, these states are also expected to have the largest number of job openings for nursing professionals – by 2020, 23 percent of job openings in nursing will be in these three states.

### **SOUTHERN STATES WILL RELY MORE ON NURSES THAN DOCTORS IN THEIR HEALTHCARE MIX.**

By 2020, nursing professionals will account for 27 percent of the healthcare workforce in the United States. But the degree to which each state will rely on nursing professionals for the delivery of healthcare services will vary widely. Southern states, in particular, are expected to rely significantly on nursing professionals. As shown in Figure 10, four of the five states that will have the highest percentage of nurses in their healthcare workforce are located in the South, including Mississippi, Alabama, Washington, D.C., Tennessee, and Arkansas. Utah, New Mexico, and Arizona will have the lowest share of nurses, and will rely more heavily on other healthcare professionals. (South Dakota also will rely more on nurses in its healthcare delivery model.)

*Figure 9.* North Dakota, Washington, D.C., and Rhode Island have the highest concentration of nursing professionals, while California, Georgia, and Nevada have the lowest.

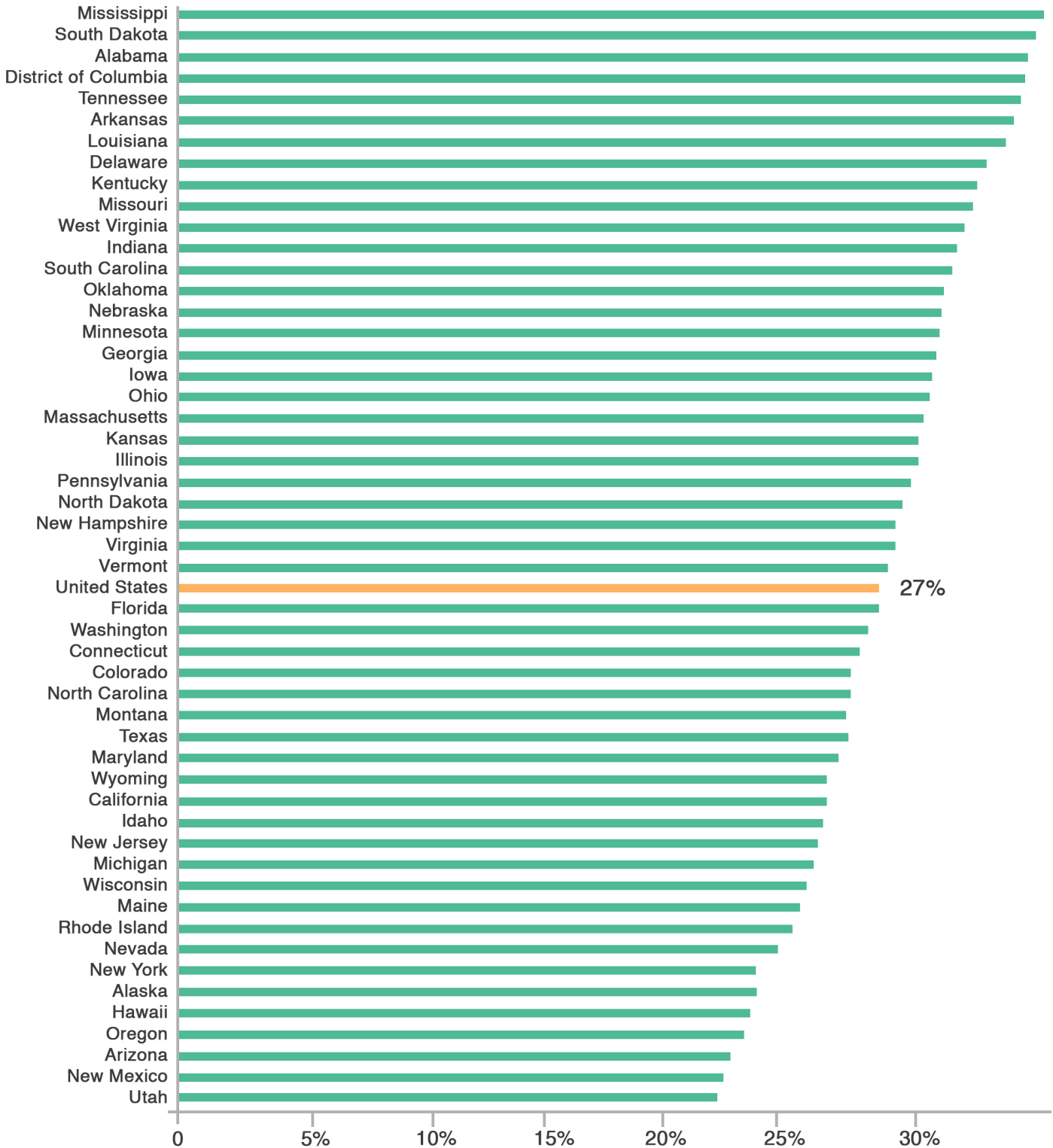
• NURSES PER 1,000 RESIDENTS BY STATE:



Sources: Georgetown University Center on Education and the Workforce analysis of Carnevale, et al., *Healthcare*, June 2012, and "Population Distribution and Change 2000-2010." *2010 Census Briefs*, C2010BR-01, 2011.

*Figure 10.* Mississippi, South Dakota, and Alabama will have the highest share of nursing professionals within their healthcare workforce by 2020, while Arizona, New Mexico, and Utah will have the lowest.

• SHARE OF NURSES IN DIRECT HEALTHCARE WORKFORCE BY STATE, 2020:



Source: Carnevale, et al., *Healthcare*, June 2012.





*Table 1.* California, Texas, and New York lead the nation in the number of nursing degrees awarded.

### NURSING DEGREES BY STATE AND EDUCATION LEVEL, 2010:

	ADN/ASN	BSN	MSN	PhD/DSN	DNP	Doctoral – Other	Total
Alabama	2,060	1,700	770	10	120	0	4,660
Alaska	90	120	10	0	0	0	220
Arizona	1,910	3,350	2,180	40	0	0	7,480
Arkansas	840	710	170	10	0	0	1,730
California	7,220	4,640	1,570	50	20	0	13,500
Colorado	830	1,290	320	10	30	0	2,480
Connecticut	530	670	280	10	10	0	1,500
Delaware	250	330	130	0	0	0	710
District of Columbia	0	240	130	10	20	0	400
Florida	5,360	3,800	1,100	40	70	0	10,370
Georgia	1,530	2,050	480	20	0	0	4,080
Hawaii	160	390	50	10	0	0	610
Idaho	530	530	40	0	0	0	1,100
Illinois	2,980	2,720	790	30	0	0	6,520
Indiana	2,240	2,760	600	10	10	0	5,620
Iowa	1,390	930	230	0	0	0	2,550
Kansas	1,130	940	180	10	10	0	2,270
Kentucky	1,800	1,090	440	10	20	0	3,360
Louisiana	920	1,480	470	10	0	0	2,880
Maine	310	410	110	0	0	0	830
Maryland	1,440	1,110	440	10	50	0	3,050
Massachusetts	1,640	1,930	680	40	20	20	4,330
Michigan	2,860	2,500	510	20	30	0	5,920
Minnesota	1,940	1,380	1,370	10	30	20	4,750
Mississippi	1,350	660	150	0	0	0	2,160
Missouri	1,550	3,680	430	30	0	0	5,690
Montana	150	260	20	0	0	0	430
Nebraska	400	930	220	0	0	0	1,550
Nevada	330	460	80	10	0	0	880
New Hampshire	440	290	40	0	0	0	770

*Table 1 Cont.* California, Texas, and New York lead the nation in the number of nursing degrees awarded.

	ADN/ASN	BSN	MSN	PhD/DSN	DNP	Doctoral – Other	Total
New Jersey	1,890	1,410	360	40	0	0	3,700
New Mexico	680	390	90	0	0	0	1,160
New York	6,880	4,490	1,440	30	60	0	12,900
North Carolina	2,440	2,110	540	10	20	0	5,120
North Dakota	90	380	110	0	10	0	590
Ohio	4,370	3,570	980	20	90	0	9,030
Oklahoma	1,320	1,370	120	0	0	0	2,810
Oregon	590	780	50	10	0	0	1,430
Pennsylvania	2,840	4,370	1,120	30	130	20	8,510
Rhode Island	210	370	30	0	0	0	610
South Carolina	1,300	1,010	150	20	0	0	2,480
South Dakota	360	440	90	0	0	0	890
Tennessee	1,370	2,010	890	50	30	0	4,350
Texas	5,560	4,660	1,080	40	50	0	11,390
Utah	1,130	730	140	10	30	0	2,040
Vermont	210	100	40	0	0	0	350
Virginia	1,730	1,680	400	60	20	0	3,890
Washington	1,700	1,160	360	40	0	0	3,260
West Virginia	580	790	150	0	10	0	1,530
Wisconsin	1,660	1,680	350	30	30	0	3,750
Wyoming	280	140	30	0	0	0	450

Source: Carnevale, et al., *Healthcare*, June 2012.

*Table 2.* The distribution of projected RN job openings through 2020 will vary widely by state.

### PROJECTED RN JOB OPENINGS BY STATE THROUGH 2020:

Alabama	26,840	Missouri	38,190
Alaska	2,930	Montana	5,050
Arizona	23,650	Nebraska	11,530
Arkansas	16,610	Nevada	8,360
California	142,940	New Hampshire	7,740
Colorado	24,150	New Jersey	39,880
Connecticut	19,640	New Mexico	8,490
Delaware	5,810	New York	91,730
District of Columbia	6,700	North Carolina	50,420
Florida	91,600	North Dakota	4,430
Georgia	45,410	Ohio	73,590
Hawaii	4,780	Oklahoma	19,580
Idaho	7,030	Oregon	16,270
Illinois	65,440	Pennsylvania	70,410
Indiana	38,100	Rhode Island	5,900
Iowa	17,700	South Carolina	23,750
Kansas	16,890	South Dakota	5,870
Kentucky	26,380	Tennessee	41,700
Louisiana	28,170	Texas	123,150
Maine	7,100	Utah	10,740
Maryland	29,200	Vermont	3,390
Massachusetts	46,350	Virginia	38,090
Michigan	48,510	Washington	31,260
Minnesota	36,280	West Virginia	10,740
Mississippi	19,020	Wisconsin	28,940
		Wyoming	2,580

Source: Georgetown University Center on Education and the Workforce projections of job openings by education, 2010-2020.

*Table 3.* The educational attainment distribution of RN jobs will vary widely among states by 2020.

### PROJECTIONS OF EMPLOYMENT FOR REGISTERED NURSES BY EDUCATION AND STATE BY 2020:

State	Nursing diploma	ADN/ASN	BSN	MSN	DNP	PhD/DNS	Total
Alabama	1,830	23,820	21,140	3,990	950	230	51,960
Alaska	180	1,370	4,870	850	*	*	7,270
Arizona	2,640	20,320	29,310	6,980	1,430	130	60,810
Arkansas	2,580	11,990	11,610	2,660	580	10	29,430
California	14,480	98,920	156,580	27,910	9,550	1,570	309,010
Colorado	3,440	13,080	24,660	5,190	2,130	60	48,560
Connecticut	3,930	11,900	17,330	4,990	1,190	*	39,340
Delaware	1,090	1,580	5,650	890	*	*	9,210
District of Columbia	120	*	1,150	490	*	110	1,870
Florida	15,050	81,860	80,970	22,160	3,090	1,300	204,430
Georgia	6,600	33,050	41,170	10,740	1,230	300	93,090
Hawaii	440	3,330	7,380	1,070	*	*	12,220
Idaho	480	6,860	7,100	1,390	310	*	16,140
Illinois	8,160	45,290	67,070	13,460	2,410	600	136,990
Indiana	3,370	31,050	34,940	6,850	870	220	77,300
Iowa	2,730	22,800	14,050	1,890	480	*	41,950
Kansas	1,500	14,990	14,510	3,440	470	*	34,910
Kentucky	930	22,280	22,180	4,370	850	260	50,870
Louisiana	3,360	17,080	24,820	4,650	130	680	50,720
Maine	1,720	4,290	8,630	1,210	80	*	15,930
Maryland	4,460	24,250	34,580	8,880	1,040	550	73,760
Massachusetts	7,770	25,390	49,890	15,310	2,090	450	100,900
Michigan	5,410	45,830	50,300	6,620	1,800	650	110,610
Minnesota	2,430	31,310	30,640	7,950	220	660	73,210
Mississippi	1,330	15,360	16,510	3,500	660	160	37,520
Missouri	5,080	26,180	29,440	5,460	1,370	310	67,840
Montana	560	2,410	4,980	640	*	*	8,590
Nebraska	2,020	7,520	15,690	2,010	440	*	27,680
Nevada	580	5,980	11,210	2,180	860	*	20,810
New Hampshire	2,030	6,480	8,310	2,490	290	*	19,600
New Jersey	9,010	24,660	53,490	12,890	2,400	920	103,370
New Mexico	1,290	9,270	8,490	3,550	730	*	23,330
New York	18,270	66,550	100,170	26,170	6,790	810	218,760

*Table 3 Cont.* The educational attainment distribution of RN jobs will vary widely among states by 2020.

State	Nursing diploma	ADN/ASN	BSN	MSN	DNP	PhD/DNS	Total
North Carolina	6,880	44,520	45,200	10,820	2,240	430	110,090
North Dakota	440	2,450	6,480	550	*	*	9,920
Ohio	10,800	62,780	57,220	13,670	1,330	260	146,060
Oklahoma	2,340	15,840	16,760	3,750	860	*	39,550
Oregon	2,350	13,580	16,330	4,380	770	160	37,570
Pennsylvania	17,360	52,440	65,530	20,040	3,780	150	159,300
Rhode Island	1,010	4,590	6,990	2,230	210	*	15,030
South Carolina	3,040	21,300	22,840	6,930	900	210	55,220
South Dakota	500	5,540	7,790	550	*	*	14,380
Tennessee	5,180	26,090	28,970	10,770	1,120	520	72,650
Texas	16,760	80,900	103,480	22,140	4,180	1,050	228,510
Utah	340	11,430	10,930	1,860	390	550	25,500
Vermont	670	2,680	4,000	930	*	*	8,280
Virginia	6,840	26,290	32,960	11,520	2,790	650	81,050
Washington	2,120	23,270	33,090	6,280	2,300	220	67,280
West Virginia	1,730	9,910	8,910	1,890	510	*	22,950
Wisconsin	3,380	28,880	33,500	7,380	600	760	74,500
Wyoming	440	1,580	1,700	390	60	*	4,170
<b>United States</b>	<b>217,050</b>	<b>1,191,120</b>	<b>1,511,500</b>	<b>348,910</b>	<b>66,480</b>	<b>14,940</b>	<b>3,350,000</b>

Georgetown University Center on Education and the Workforce projections of employment by education, 2010-2020.

\*Fewer than 10 RNs are projected to fall into this category. Current employment sample is too small for more specific projection

*Table 4.* In a number of large states, such as New York, California, and Wisconsin, more than 100,000 nursing professionals are not actively working as nurses.

## LICENSED NURSES VERSUS WORKING NURSES, BY STATE (VARIOUS YEARS):

State	Employed nursing professionals	Licensed nursing professionals	Licensed nursing professionals not working in nursing	State	Employed nursing professionals	Licensed nursing professionals	Licensed nursing professionals not working in nursing
AL*	44,560	62,898	18,338	MT	9,088	20,850	11,762
AK	6,271	18,096	11,825	NC	63,465	143,062	79,597
AR	37,375	51,924	14,549	ND	12,839	16,531	3,692
AZ	35,713	86,089	50,376	NE	23,133	33,396	10,263
CA	390,972	475,444	84,472	NH	**	24,219	**
CO	45,640	73,663	28,023	NJ	76,778	141,688	64,910
CT*	54,057	69,806	15,749	NM	15,746	27,954	12,208
DC	1,733	27,363	25,630	NV	26,360	31,798	5,438
DE	10,277	19,560	9,283	NY	219,080	364,200	145,120
FL	193,267	330,396	137,129	OH	171,756	247,013	75,257
GA	107,397	147,662	40,265	OK	48,231	69,469	21,238
HI	7,429	21,873	14,444	OR	26,396	54,158	27,762
IA	37,803	60,573	22,770	PA	155,810	268,556	112,746
ID	11,658	25,407	13,750	RI	10,327	19,831	9,505
IL	158,430	198,953	40,523	SC	66,362	69,989	3,627
IN	69,855	131,117	61,262	SD	15,584	18,063	2,479
KS	32,397	61,316	28,919	TN	79,041	119,690	40,649
KY	55,993	81,813	25,820	TX	248,497	353,582	105,085
LA*	43,187	81,484	38,297	UT	33,206	33,365	159
MA	56,276	142,376	86,101	VA	113,664	125,311	11,647
ME	17,131	25,558	8,427	VT	9,128	17,260	8,132
MD	79,209	87,376	8,167	WA	70,138	96,607	26,469
MI	131,587	170,525	38,938	WI	80,100	104,527	24,427
MN	78,288	115,018	36,730	WV	29,719	42,288	12,569
MS	36,548	57,326	20,778	WY	3,650	12,493	8,843
MO	82,010	116,841	34,831				

\*Note: Alabama, Connecticut and Louisiana did not have the 2012-2013 licensing volume data available for all nursing professionals, so the most recent data, as reported in National Council of State Boards of Nursing (NCSBN), *2012 and 2013 Nurse Licensee Volume and NCLEX Examination Statistics, 2014*, were used in the analysis.

\*\* Data withheld due to insufficient sample size.

Source: Georgetown University Center on Education and the Workforce analysis of data from the National Council of State Boards of Nursing (NCSBN), *2012 and 2013 Nurse Licensee Volume and NCLEX Examination Statistics, 2014*; and the U.S. Census Bureau, *Current Population Survey (CPS), March Supplement, 2013*.

*Table 5.* The distribution of the healthcare workforce varies by state.

**DISTRIBUTION OF HEALTHCARE WORKFORCE, BY STATE  
(VARIOUS YEARS):**

State	Doctors	Allied Healthcare Professionals	Nurses	Support
Alabama	10%	25%	33%	32%
Alaska	11%	31%	24%	35%
Arizona	13%	28%	24%	35%
Arkansas	11%	25%	32%	32%
California	13%	25%	26%	36%
Colorado	13%	29%	27%	31%
Connecticut	10%	26%	27%	37%
Delaware	12%	25%	32%	31%
District of Columbia	12%	28%	33%	27%
Florida	11%	26%	27%	35%
Georgia	12%	27%	29%	32%
Hawaii	16%	25%	24%	35%
Idaho	11%	26%	25%	38%
Illinois	12%	27%	28%	32%
Indiana	10%	26%	30%	33%
Iowa	9%	23%	29%	38%
Kansas	10%	26%	29%	35%
Kentucky	10%	27%	32%	31%
Louisiana	10%	23%	32%	35%
Maine	11%	26%	25%	39%
Maryland	14%	27%	26%	33%
Massachusetts	13%	29%	29%	30%
Michigan	11%	26%	25%	38%
Minnesota	11%	22%	29%	38%
Mississippi	9%	24%	34%	34%
Missouri	10%	26%	31%	33%
Montana	12%	24%	27%	37%
Nebraska	11%	25%	29%	34%
Nevada	14%	26%	25%	36%
New Hampshire	12%	28%	28%	32%
New Jersey	15%	23%	25%	37%
New Mexico	11%	26%	23%	39%



*Table 5 Cont.* The distribution of the healthcare workforce varies by state.

State	Doctors	Allied Healthcare Professionals	Nurses	Support
New York	14%	22%	25%	40%
North Carolina	10%	24%	27%	39%
North Dakota	9%	23%	28%	40%
Ohio	10%	22%	29%	39%
Oklahoma	12%	25%	29%	34%
Oregon	14%	28%	24%	35%
Pennsylvania	10%	25%	28%	37%
Rhode Island	11%	25%	25%	39%
South Carolina	11%	26%	30%	34%
South Dakota	9%	27%	33%	30%
Tennessee	10%	27%	33%	30%
Texas	11%	25%	27%	37%
United States	12%	25%	27%	35%
Utah	12%	29%	23%	36%
Vermont	13%	30%	27%	29%
Virginia	12%	26%	28%	34%
Washington	12%	27%	27%	33%
West Virginia	10%	26%	31%	33%
Wisconsin	10%	26%	25%	38%
Wyoming	12%	28%	26%	34%

Source: Carnevale, et al., *Healthcare*, June 2012.

Percentages may not total 100 due to rounding.

## Bibliography

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- Aiken, L.H., and Robyn Cheung. "Nurse Workforce Challenges in the United States: Implications for Policy." *OECD Health Working Papers, No. 35* (2008), <http://www.oecd.org/dataoecd/34/9/41431864.pdf>.
- Almada, P., K. Carafoli, J.B. Flattery, D.A. French, and M. McNamara. "Improving the Retention Rate of Newly Graduated Nurses." *Journal for Nurses in Staff Development*, 20, no. 6 (November/December 2004): 268-273.
- AMN Healthcare, Inc. *Healthcare's 2013 Survey of Registered Nurses: Generation Gap Grows as Healthcare Transforms*. San Diego, CA: AMN Healthcare, Inc. (2013), <http://www.amnhealthcare.com/industry-research/546/1033/>.
- Buerhaus, Peter I., David I. Auerbach, and Douglas O. Staiger. "The Recent Surge In Nurse Employment: Causes And Implications." *Health Affairs*, 28, no. 4 (2009): w657-w668, <http://content.healthaffairs.org/content/28/4/w657.short>.
- Buerhaus, Peter I., David I. Auerbach, Douglas O. Staiger, and Ulrike Muench. "Projections of the Long-Term Growth of the Registered Nurse Workforce: A Regional Analysis." *Nursing Economics*, 31, no. 1 (2013): 13-17, [https://www.nursingconomics.net/necfiles/news/JF\\_13\\_Buerhaus.pdf](https://www.nursingconomics.net/necfiles/news/JF_13_Buerhaus.pdf).
- Buerhaus, Peter I., Karen Donelan, Beth T. Ulrich, Linda Norman, Catherine DesRoches, and Robert Dittus. "Impact of the Nurse Shortage on Hospital Patient Care: Comparative Perspectives." *Health Affairs*, 26, no. 3 (2007): 853-862.
- Bureau of Health Professions, Health Resources and Services Administration. *Projected Supply, Demand, and Shortages of Registered Nurses: 2000 – 2020*. Washington, D.C.: U.S. Department of Health and Human Services, July 2002, [http://www.ahcancal.org/research\\_data/staffing/Documents/Registered\\_Nurse\\_Supply\\_Demand.pdf](http://www.ahcancal.org/research_data/staffing/Documents/Registered_Nurse_Supply_Demand.pdf).
- Bureau of Labor Statistics. "Registered Nurses." *Occupational Outlook Handbook, 2012-13 Edition*. Washington, D.C.: U.S. Department of Labor, 2012, <http://www.bls.gov/ooh/healthcare/registered-nurses.htm>.
- Carnevale Anthony P., and Ban Cheah. *Hard Times: College Majors, Unemployment and Earnings*. Washington, D.C.: Center on Education and the Workforce, 2013, <http://cew.georgetown.edu/unemployment2013>.
- Carnevale, Anthony P., Nicole Smith, Artem Gulish, and Bennet H. Beach. *Healthcare*. Washington, D.C.: Georgetown University Center on Education and the Workforce, 2012, <http://cew.georgetown.edu/healthcare/>.

## Bibliography Cont.

---

- Center to Champion Nursing in America. *Nursing Workforce Solutions for 21st Century Healthcare: Addressing Education Capacity*. Washington, D.C.: AARP and Robert Wood Johnson Foundation, February 2011. <http://campaignforaction.org/sites/default/files/Education%20Capacity%20CCNA%202%2017%20final.pdf>.
- Centers for Medicare and Medicaid Services. *Medicaid & CHIP: March 2014 monthly applications*. Washington, D.C.: Center for Medicare and Medicaid Services, May 1, 2014, <http://www.medicaid.gov/AffordableCareAct/Medicaid-Moving-Forward-2014/Downloads/March-2014-Enrollment-Report.pdf>.
- Congressional Budget Office. *The Budget and Economic Outlook: 2014 to 2024*. Washington, D.C.: Congressional Budget Office. February 2014, <http://www.cbo.gov/publication/45010>.
- Elgie, Rob. "Politics, Economics, and Nursing Shortages: A Critical Look at United States Government Policies." *Nursing Economic\$,* 25, no. 5. (2007): 285-292.
- Fang, Di, Yan Li, and Geraldine D. Bednash. *2011-2012 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing*. Washington, D.C.: American Association of Colleges of Nursing, 2012.
- Fang, Di, Yan Li, and Geraldine D. Bednash. *2011-2012 Salaries of Instructional and Administrative Nursing Faculty in Baccalaureate and Graduate Programs in Nursing*. Washington, D.C.: American Association of Colleges of Nursing, 2012.
- Fox, R.L., and K. Abrahamson. "A critical examination of the U.S. Nursing Shortage: Contributing Factors, Public Policy Implications." *Nursing Forum* 44, no. 4 (October 2009): 235-244.
- Health Resources and Services Administration. *What Is Behind HRSA's Projected Supply, Demand, and Shortage of Registered Nurses?* Washington, D.C.: U.S. Department of Health and Human Services, September 2004, [http://dwd.wisconsin.gov/healthcare/pdf/behind\\_the\\_shortage.pdf](http://dwd.wisconsin.gov/healthcare/pdf/behind_the_shortage.pdf).
- Health Resources and Services Administration. *National Sample Survey of Registered Nurses (NSSRN) 1980-2008*. Washington, D.C.: U.S. Department of Health and Human Services, 2010, <http://datawarehouse.hrsa.gov/nursingsurvey.aspx>.
- Health Resources and Services Administration. *Nurse Education, Practice and Retention Grants*. Program Number: 93.359, Washington, D.C.: Department of Health and Human Services 2012, accessed through Catalog of Federal Domestic Assistance, <https://www.cfda.gov/index?s=program&mode=form&tab=core&id=8805382442a5b18d1478fd2ae8374410>.

## *Bibliography Cont.*

---

Hoffman, H. "A Nurse Retention Program." *Nursing Economic\$,* 7, no. 2 (1989): 94-96, 108.

Institute of Medicine (IOM). *The Future of Nursing: Leading Change, Advancing Health.* Washington, D.C.: The National Academies Press, 2011.

Institute of Medicine. (IOM). *"Keeping Patients Safe: Transforming the Work Environment of Nurses,"* Washington, D.C.: The National Academies Press, 2004.

Jones-Schenk, J. "How Magnets Attract Nurses." *Nursing Management,* 32, no. 1 (2001): 41-42.

Joynt, Jennifer, and Bobbi Kimball. *Blowing Open the Bottleneck: Designing New Approaches to Increase Nurse Education Capacity.* Washington, D.C.: Center to Champion Nursing in America, AARP, and the Robert Wood Johnson Foundation, U.S. Department of Labor-Employment and Training Administration (ETA), May 2008,<http://championnursing.org/resources/blowing-open-bottleneck-designing-new-approaches-increase-nurse-education-capacity>.

Kane, Robert L., Tatyana Shamliyan, Christine Mueller, Sue Duval, and Timothy J. Wilt. *Nurse Staffing and Quality of Patient Care.* Minneapolis, MN: Minnesota Evidence-based Practice Center, AHRQ 07-E005, March 2007, <http://www.ncbi.nlm.nih.gov/books/NBK38315/>.

National Center for Education Statistics, Institute of Education Sciences. *Baccalaureate and Beyond: A First Look at the Employment Experiences and Lives of College Graduates, 4 Years On (B&B:08/12).* Washington, D.C.: U.S. Department of Education.

National Center for Educational Statistics, Institute of Education Sciences. *Integrated Postsecondary Education Data System (IPEDS) Completions Survey. 1992-2011.* Washington, D.C.: U.S. Department of Education, <http://nces.ed.gov/ipeds/>.

National Center for Health Workforce Analysis, Health Resources and Services Administration (HRSA). *Projecting the Supply of Non-Primary Care Specialty and Subspecialty Clinicians: 2010-2025.* Washington, D.C.: U.S. Department of Health and Human Services (HHS), 2014. <http://bhpr.hrsa.gov/healthworkforce/supplydemand/usworkforce/clinicalspecialties/index.html>.

National Council of State Boards of Nursing (NCSBN). *Nursing Licensure Volume and NCLEX Examination Statistics,* Chicago: NCSBN, Inc., 1987-2014, <https://www.ncsbn.org/1236.htm>.

## Bibliography Cont.

---

- National League for Nursing (NLN). *Annual Survey of Schools of Nursing, 2007-2008*. Washington, D.C.: NLN 2010, [http://www.nln.org/researchgrants/slides/viewall\\_0708.htm](http://www.nln.org/researchgrants/slides/viewall_0708.htm).
- National League for Nursing (NLN). *Annual Survey of Schools of Nursing, Fall 2011*. Washington, D.C.: NLN 2012, [www.nln.org/research/slides/index.htm](http://www.nln.org/research/slides/index.htm).
- Office of Inspector General (OIG), Department of Health and Human Services. "Hospital Best Practices in Nurse Recruitment and Retention." *Nursing Economic\$, 7*, no. 2 (1989): 98-105.
- Organization for Economic Cooperation and Development (OECD). "How Does the United States Compare." *OECD Health Data 2013*. Washington, D.C.: OECD Publishing, 2013, <http://www.oecd.org/unitedstates/Briefing-Note-USA-2013.pdf>.
- Ortman, Jennifer, Victoria Velkoff, and Howard Hogan. "An Aging Nation: The Older Population in the United States." *Current Population Reports P25-1140*. Washington, D.C.: U.S. Census Bureau, May 2014, <http://www.census.gov/prod/2014pubs/p25-1140.pdf>.
- Ricketts, T.C. "The Healthcare Workforce: Will It Be Ready as the Boomers Age? A Review of How We Can Know (or Not Know) the Answer." *Annual Review of Public Health 32* (2011): 417-430, <http://www.annualreviews.org/doi/abs/10.1146/annurev-publhealth-031210-101227> (doi: 10.1146/annurev-publhealth-031210-101227).
- Seago, Jean Ann. "Nurse Staffing, Models of Care Delivery, and Interventions." In *Making Health Care Safer: A Critical Analysis of Patient Safety Practices*, edited by Kaveh G. Shojania, Bradford W. Duncan, Kathryn M. McDonald, Robert M. Wachter, and Amy J. Markowitz. Rockville, MD: U.S. Department of Health and Human Services, July 2001), <http://www.ncbi.nlm.nih.gov/books/NBK26966/>.
- Social Security Administration. "Actuarial Life Table." 2010, <http://www.ssa.gov/oact/STATS/table4c6.html>.
- United States Census Bureau. *American Community Survey (ACS)*. 2009-2012, <http://www.census.gov>.
- United States Census Bureau and Bureau of Labor Statistics, *Current Population Survey March Supplement (Annual Economic and Social Supplement)*. Washington, D.C.: United States Census Bureau and Bureau of Labor Statistics, 1980-2013. Accessed using CPS Utilities: Documentation and Extraction Utilities for U.S. Census Bureau Current Population Surveys, Santa Monica, CA: Unicon Corporation, 2014.



## *Bibliography Cont.*

---

United States Census Bureau. "Population Distribution and Change 2000-2010." *2010 Census Briefs*, C2010BR-01. March 2011, <http://www.census.gov/prod/cen2010/briefs/c2010br-01.pdf>.

Yordi, Karl. *The Nursing Faculty Shortage: A Crisis for Health Care*. Washington, D.C.: Association of Academic Health Centers/Robert Wood Johnson Foundation, 2006, <http://www.rwjf.org/files/publications/other/NursingFacultyShortage071006.pdf>.



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