

# A Data-Driven Examination of the Impact of Associate and Bachelor's Degree Programs on the Nation's Nursing Workforce

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Roxanne Fulcher and Christopher M. Mullin



## HEALTH PROFESSIONS EDUCATION CENTER

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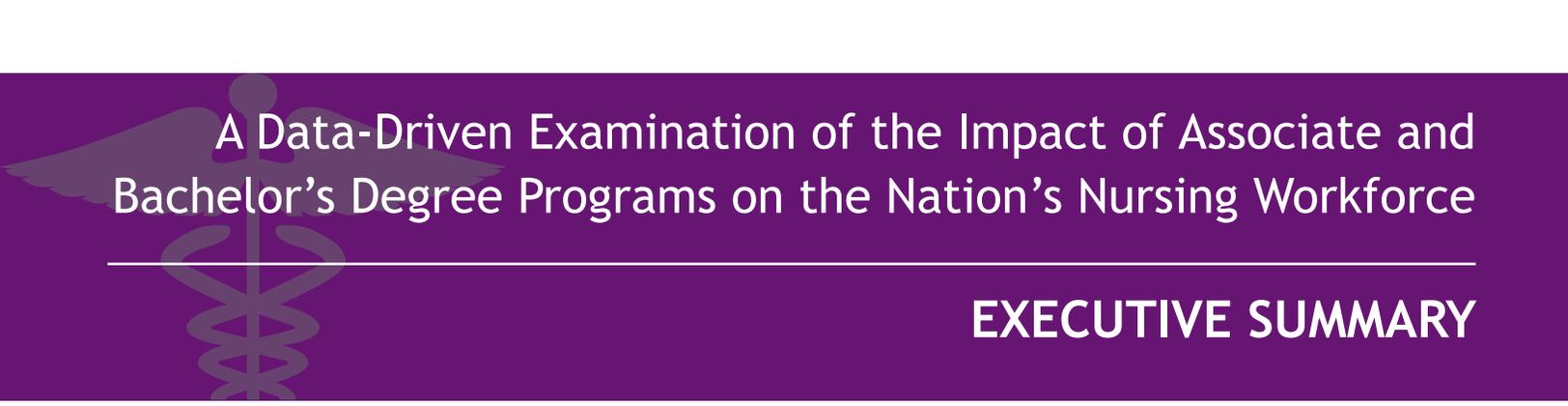
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# A Data-Driven Examination of the Impact of Associate and Bachelor's Degree Programs on the Nation's Nursing Workforce

## EXECUTIVE SUMMARY

The nation relies on both 2- and 4-year institutions of higher education for the majority of its registered nurses (RNs), who are authorized to practice as RNs after achieving either an associate or bachelor's-level nursing degree and passing a national licensure exam. Due to job growth and retirements, the nation is projected to need more than 1 million additional RNs by 2018. Yet, recently, schools of nursing received thousands of qualified applications that could not be processed for enrollment due primarily to a shortage of RNs educated at the graduate level who are prepared to serve as faculty.

No national plan is in place to enable schools of nursing to expand enrollments to meet the demands of students or the workforce. Further exacerbating the situation, the nursing profession continues to be fragmented after 50 years of debate focused on whether all RNs should be required to attain bachelor's-level nursing degrees. During these five decades, research has been inconclusive in demonstrating the value of shifting the education of all RNs to the bachelor's level.

However, nursing research and practice have demonstrated that the nation depends on the successes of both associate and bachelor's-level schools of nursing, because they contribute individually to collectively building a strong nursing workforce. The most recent data, summarized in this brief, reveal the following:

- The majority of the nation's new RNs are educated in ADN programs.
- All schools of nursing teach students the competencies necessary for RN practice, as measured by National Certification Licensing Examination (NCLEX) pass rates.
- ADN programs provide the nation its greatest number of minority RNs.
- Employers are equally likely to hire ADN- and BSN-prepared RNs.
- ADN programs educate the majority of RNs in rural settings.



# A Data-Driven Examination of the Impact of Associate and Bachelor's Degree Programs on the Nation's Nursing Workforce

## Introduction

The demand for registered nurses (RNs) in the coming decade is strong, with a projected 22% increase in employment—or 581,500 new jobs—by 2018. When accounting for job growth and replacing retiring RNs, a projected 1,039,000 jobs will need to be filled by 2018 (Bureau of Labor Statistics [BLS], 2010; Employment and Training Administration, 2010). Despite national need for RNs and strong student interest, in the 2008–2009 academic year alone the nation's schools of nursing were unable to meet admission demand expressed through more than 119,000 qualified enrollment applications, primarily due to a shortage of RNs educated at the graduate level who can serve as faculty (National League for Nursing, 2010).

For more than 50 years, RNs have achieved educational credentials through an associate degree in nursing (ADN), a bachelor of science in nursing (BSN), or a hospital diploma program. Although some have asserted that every RN must attain a BSN, research has not delivered evidence to support requiring all RNs to earn a BSN, yet the debate about nursing education continues. Most recently, the 2011 report, *The Future of Nursing: Leading Change, Advancing Health*, by the Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing at the

Institute of Medicine (IOM), made the following point: “The causal relationship between the academic degree obtained by RNs and patient outcomes is not conclusive in the research literature” (IOM, 2010, p. 4-7). The IOM report cited both contradictory and confusing research in this area:

- Blegen, Vaughn, and Goode (2001) found that nurses' experience levels were more important than their educational level in achieving better patient outcomes.
- Aiken, Clarke, Cheung, Sloane, and Silber (2003) found an association between employing a higher proportion of BSN- and graduate degree-prepared RNs and patient outcomes.
- In 2008, however, researchers for the Veterans Administration found no significant association between the proportion of BSN-prepared RNs and patient outcomes (Sales et al., 2008).

The IOM report also indicated that studies have demonstrated that clinical experience and qualifications obtained before nursing students enter into a nursing program (e.g., SAT scores) must be considered in the ADN versus BSN debate. Furthermore, understanding the value of the BSN is confounded by the fact that many ADN-prepared RNs with demonstrated knowledge and competencies in RN practice later join the BSN workforce. The report criticized the ability of BSN

programs to prepare RNs for future practice, stating, “Nursing curricula need to be reexamined, updated, and adaptive.” Notwithstanding all of the above, the report recommended increasing the proportion of nurses with a baccalaureate to 80% by 2020.

The purpose of this brief is to restate the data that support the value of RN education as delivered by all programs.<sup>1</sup> In doing so, we seek to emphasize the strengths that the current educational pathways to nursing contribute as the nation implements health-care reform to address the demands of an increasingly diverse and aged population.

## The Pathway for Registered Nurses

### *Programs of Study*

Becoming an RN requires successful graduation from a school of nursing and passage of the National Council Licensure Examination—Registered Nurse (NCLEX). Students may earn the educational credential required for RN practice at three types of programs that vary in duration: ADN (2 years), hospital diploma (3 years), or BSN (4 years). Community colleges offer the majority of ADN programs as well as a limited but growing number of BSN programs, whereas 4-year institutions offer the majority of BSN programs. Generally, the BSN requires at least 120 credit hours and the ADN requires about 71.5 credit hours, which is slightly more than

required for the traditional 60-credit-hour associate degree program (Vervena & Fulcher, 2004).

Students begin nursing study in the first year of enrollment in ADN and hospital diploma programs, whereas students begin nursing study in the third year of enrollment in BSN programs. No research exists to distinguish between or to demonstrate the similarities in the curricula or content in the three types of nursing programs, nor does research exist to demonstrate the benefits of graduating from one type of program rather than another. All programs teach students the competencies necessary for RN practice, as measured by the NCLEX pass rates.

In 1980, slightly fewer than 20% of RNs were educated in either ADN

or BSN programs. This has changed over time: The ADN has become the preferred pathway to the profession. According to The Registered Nurse Population Findings from the 2008 National Sample Survey of Registered Nurses (NSSRN 2008), published by the Health Resources and Services Administration (HRSA) of U.S. Department of Health and Human Services, as of March 2008, 45.4% of RNs were initially educated in associate degree programs, compared with 20.4% educated in diploma programs and 34.2% educated in bachelor's degree and higher programs (see Figure 1).

Furthermore, of RNs graduating in 2005 or later, 56.6% (177,401) received their initial nursing degrees from ADN programs, while 33.6% (105,402) received nursing degrees initially in

BSN programs (HRSA, 2010a, p. A-2).<sup>2</sup>

### Licensure Rates

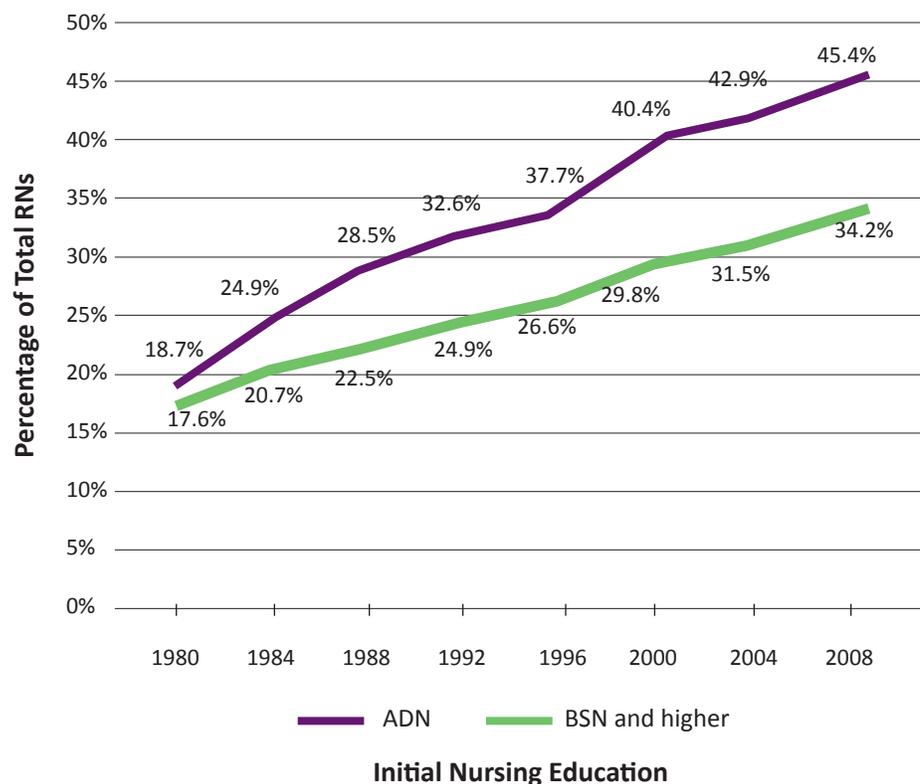
The National Council of State Boards of Nursing (NCSBN) is responsible for preparing the NCLEX, designed as a screening tool to identify candidates who demonstrate sufficient ability to practice entry-level nursing. NCSBN conducts ongoing assessments of the NCLEX to ensure that it is a psychometrically sound and legally defensible licensure examination consistent with current nursing practice. To keep pace with the rapidly evolving health-care environment, content on the exam is the result of practice (i.e., job) analysis surveys, traditionally conducted on a 3-year cycle and reflecting the practice of nursing in multiple major practice settings (NCSBN, 2009b). The majority of NCLEX content is designed to assess a candidate's problem-solving skills. Examples of cognitively complex items may include making assignments for four clients, prioritizing care for four clients, and analyzing complex client data to determine an appropriate nursing action (NCSBN, 2010b).

Data show that NCLEX pass rates do not vary significantly by educational credential. Specifically, most recent data demonstrate 2009 NCLEX pass rates as follows: diploma-prepared: 89.9%; ADN-prepared: 86.6%; and BSN-prepared: 88.7% (NCSBN, 2010b). Historically, ADN programs have prepared approximately 60% of NCLEX candidates (see Figure 2).

All RN programs teach students the competencies required for successful practice as an RN, but none of the types of RN programs prepares RNs for specialty or advanced practice. The licensure and scope of practice all RNs share guide what responsibilities can be managed. The skills and knowledge that make

**Figure 1**

Distribution of Registered Nurses According to Initial Nursing Education, 1980–2008



Source: Adapted from HRSA (2010a, Figure 2-1)

up the foundation of RN practice delivered through the RN program prepares graduates for advanced training and learning.

## Diversity in Nursing

Not only do ADN programs graduate the majority of new RNs, but also they graduate the largest number of minorities. ADN programs provide the nation's nursing workforce with its greatest diversity (see Figure 3). Recognition of diversity is a critical component of health-care reform's goal to advance accessible, affordable, quality health care to all. Quality improvement under a redesigned health system will take into account the needs and challenges of populations and communities that historically have suffered health disparities. In addressing

inequities, the nation will realize potential savings by improving health and reducing the costs resulting from the disproportionate burden of disease faced by these populations and communities.

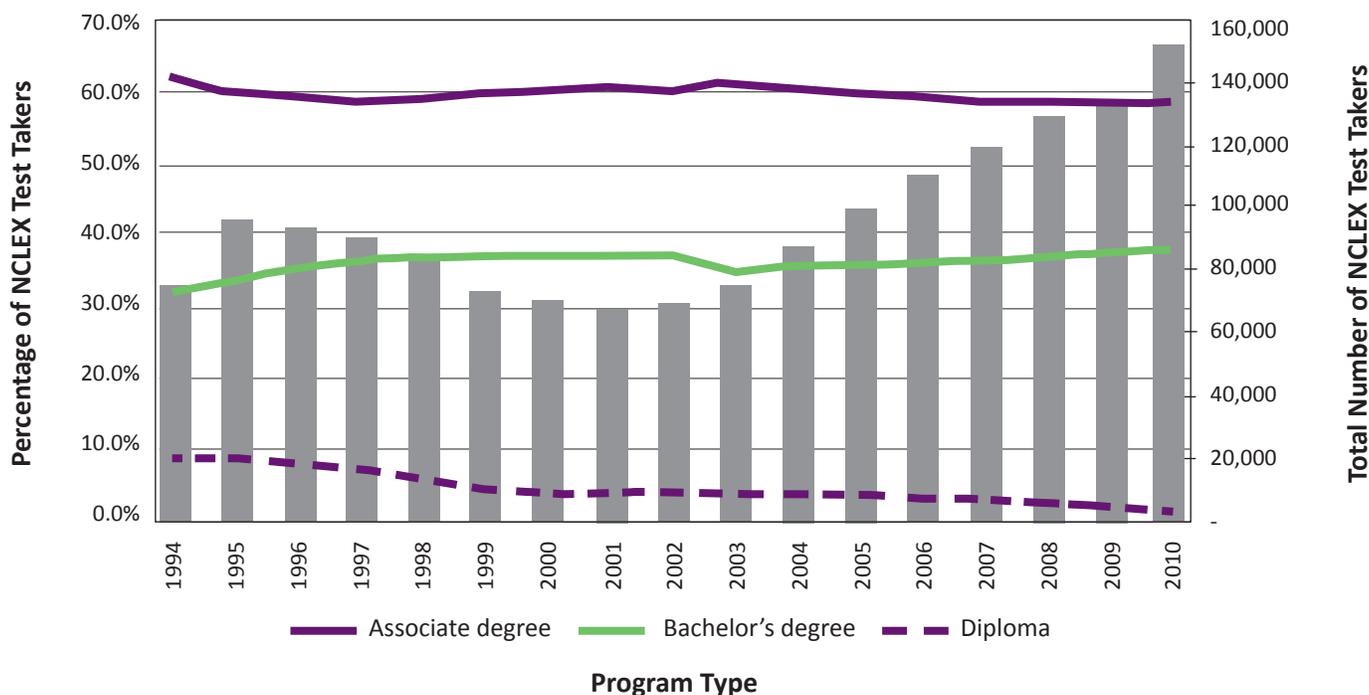
Closing the nation's costly health quality gap will rely on nurses—the predominant provider among the health-care workforce. But although 34% of the general population self-report as minorities, racial or ethnic minority groups remain underrepresented in the RN population (U.S. Census Bureau, 2009). In 2008, RNs from minority racial and ethnic groups made up only 16.8% of all nurses (HRSA, 2010a). Not only are minorities in nursing key to developing a health-care system that understands and addresses the needs of our rapidly

diversifying population, but also racial and ethnic minorities are an untapped talent to remedy a nationwide nursing shortage.

Minority students in higher education are concentrated in community colleges, making up about 40% of this institution's student population (American Association of Community Colleges, 2010). It is no surprise, then, that community colleges are among the higher education institutions that traditionally have served populations that have suffered health disparities. ADN programs provide the nation its largest Black non-Hispanic RN population. Specifically, ADN programs educate 54.7% (80,113), whereas BSN programs educate 32.1% (47,013) of Black non-Hispanic RNs (HRSA, 2010a). Likewise, ADN

**Figure 2**

Total Number and Relative Percentage of First-Time U.S.-Educated NCLEX Test Takers, by Program Type: 1994–2010



Note: Program type was not available for repeat or internationally educated test takers. Full-year values for 2010 were estimated.

Source: NCSBN (1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009a, 2010a).

programs provide the nation its greatest number of Hispanic RNs 55.1% (55,676), compared with 39.4% (39,610) trained in BSN programs (HRSA, 2010a, p. A-2)<sup>3</sup> Interestingly, Asian RNs are more likely to practice with the BSN, which NSSRN acknowledges “may be due in part to the large share of Asian RNs who were internationally educated” (HRSA, 2010a, pp. 7–8).

### The Cost and Financing of Nursing Education

The cost of earning the RN credential from an ADN or BSN program is significantly different. An ADN student at a public community college pays \$6,120 in tuition and fees to complete a 72-credit program.<sup>4</sup> To earn the RN credential in a BSN program at a public college, a student pays between \$10,528 and

\$21,960 more than a community college student pays (see Table 1). The Obama administration, at its October 2010 White House Summit on Community Colleges, underscored the significance of the community

college pathway, reporting, “Affordability is critically important to community college students, who generally have lower incomes than four-year students and [are] more likely to cite financial concerns as

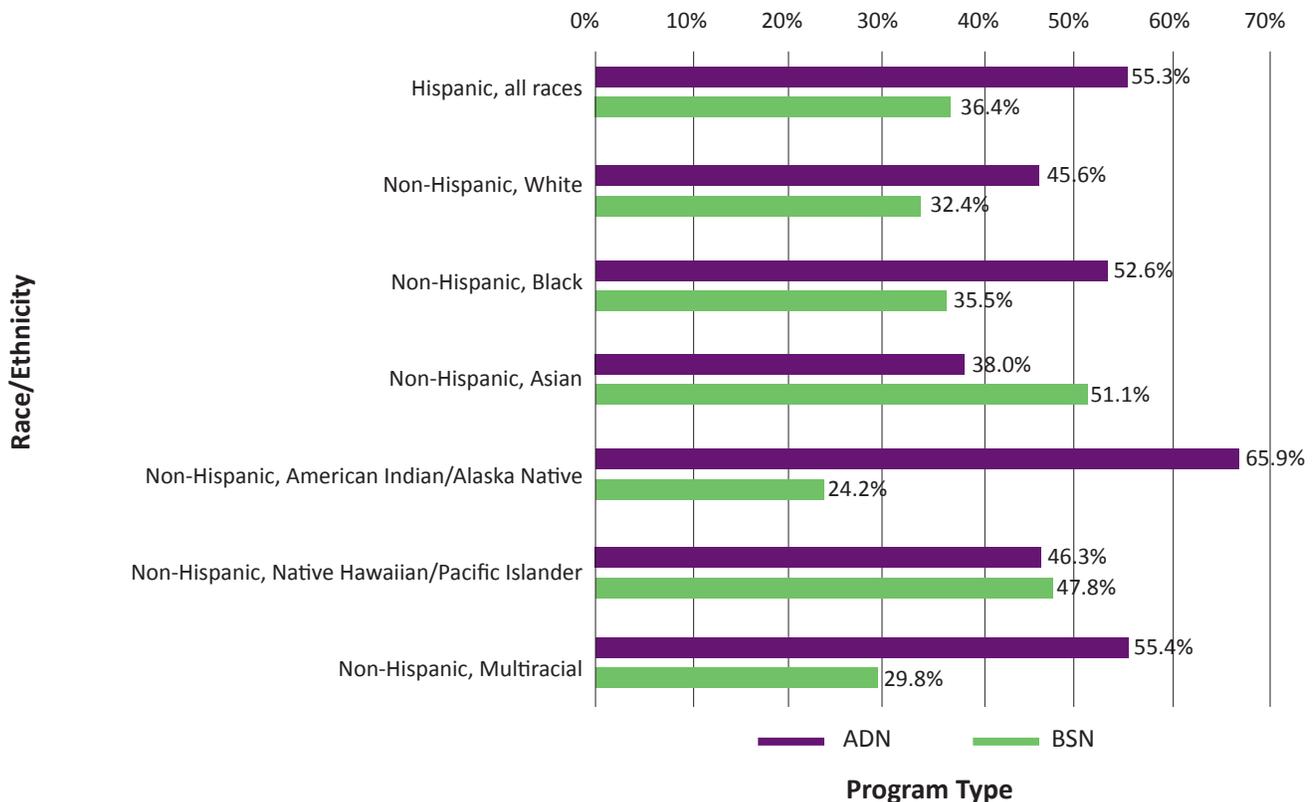
**Table 1**  
Tuition and Fee Cost by Program and Institution Type

Cost Data	Program/Institution		
	Bachelor's degree	Associate degree	
	Public 4-year	Public 4-year	Community college
Number of credits	120	72	72
Cost per credit	\$234	\$234	\$85
Cost to student	\$28,080	\$16,648	\$6,120
<b>Cost over community college</b>	<b>\$21,960</b>	<b>\$10,528</b>	—

Source: College Board (2009); Vervena and Fulcher (2004).

**Figure 3**

Distribution of Registered Nurses by Race/Ethnicity and Program Type for Initial Licensure: 2008



Note: Does not include RNs trained outside of the United States. Data for diploma, master's, doctorate, and other are not shown here.  
Source: Adapted from HRSA (2010b).

impediments to persistence and completion” (White House, 2010). Despite the fact that ADN programs provide the most cost-effective and efficient pathway to the nursing profession, offering the greatest potential return on public investment, federal and state funding supports fewer ADN-prepared RNs than BSN-prepared RNs (see Figure 4). Additionally, NSSRN data show that a larger percentage of ADN-prepared RNs compared with BSN-prepared RNs financed their own nursing education through health-care-related employment and personal savings (see Figure 4).

### The Value of Education to ADN- and BSN-Prepared RNs

Prior to receiving their initial nursing degree, 24.6% (341,025) of

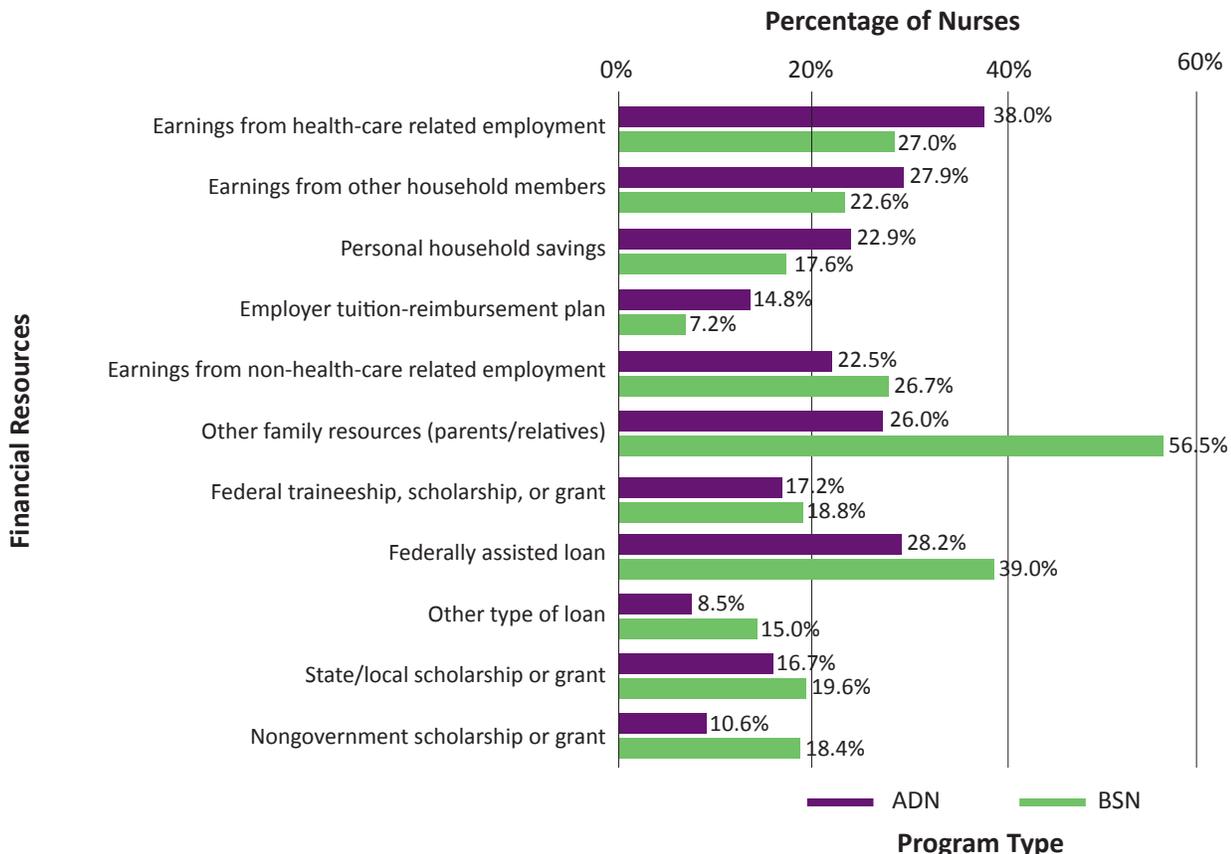
ADN-prepared RNs held academic degrees (HRSA, 2010a, p. A-4). NSSRN 2008 does not provide comparable data for the education prior to initial nursing education for BSN-prepared RNs; rather, data are provided for a grouping that combines BSN-prepared RNs with those prepared with graduate degrees (261,204). The grouping of BSN- and graduate-prepared RNs held prior academic degrees at about the same rate (25.0%) as did ADN-prepared RNs. A closer look at the NSSRN data demonstrates that 142,789 ADN-prepared RNs held bachelor’s degrees prior to achieving initial nursing degrees, compared with 169,964 from the grouping that combined BSN- and graduate degree-prepared RNs who held bachelor’s degrees prior to achieving initial nursing degrees (HRSA, 2010a,

p. A-4). Of 274,517 RNs who held a degree from a health-related field prior to achieving an initial nursing degree, 141,503 became ADN-prepared RNs, compared with 105,718 who earned a BSN or higher degree (HRSA, 2010a, p. A-8). These data indicate that ADN-prepared RNs are the largest cohort of nurses with prior health-care experience upon joining the RN workforce.

Following initial nursing education and becoming RNs, about the same percentage (but a significantly larger number) of ADN-prepared RNs and those in the combined group of BSN- and graduate degree-prepared RNs are likely to continue their education, at 20.9% (289,657) and 21.6% (225,963), respectively.<sup>5</sup> After becoming RNs, BSN-prepared RNs who seek to achieve an

**Figure 4**

Financial Resources Used for Tuition and Fees for Initial Nursing Education, by Program Type: 2008



Source: Adapted from HRSA (2010a, Table 3).

additional nursing degree advance to Master's in the Science of Nursing (MSN) and other graduate-level nursing programs that expand competencies, preparing students for advanced practice and employment beyond the RN level. Like their counterparts with BSN preparation, ADN-prepared RNs also are poised to earn an MSN. However, only 24% (69,511) of ADN-prepared RNs who earn an additional degree have achieved a graduate degree, and efforts to direct RNs to the nation's 161 existing RN-to-MSN programs are understated (HRSA, 2010a, p. A-8).

Aiken and colleagues have underscored the consequence of ADN-prepared RNs attaining BSNs rather than MSNs in an analysis that suggests that as long as ADN-prepared RNs obtain a BSN rather than a graduate degree, "having enough faculty (and other master's-prepared nurses) to enable nursing schools to expand enrollment is a mathematical improbability" (Aiken, Cheung, & Olds, 2009). IOM has recognized the potential of the RN-to-MSN as "a significant pathway to advanced practice and faculty positions" and the importance of providing financial support to help build capacity of ADN-prepared RNs in those programs (IOM, 2010, p. 4-10).

## RNs in the Workforce

Data are not available that allow for comparison of the employment of RNs initially educated in ADN programs with those initially educated in BSN programs. Rather, data are presented on the employment of RNs by the highest level of nursing or nursing-related education. This distinction is important because a large percentage of ADN-prepared RNs are employed in nursing prior to obtaining the BSN. Furthermore, data do not facilitate understanding

of whether ADN-prepared RNs are more satisfied with employment upon attaining the BSN.

Data indicate that while extreme job satisfaction is about the same between RNs employed in nursing whose highest nursing-related education is either the ADN or the BSN at 26.1% and 28.4%, respectively, a significant increase in job satisfaction occurs when RNs achieve graduate-level education, at 39.2% (HRSA, 2010a, p. A-37). These data are relevant to policy discussions centered on improving nursing care, as well as on retaining nurses in the profession. Data also demonstrate that employers are equally likely to hire ADN- and BSN-prepared RNs, with more than 75% of RNs, regardless of current education level, working in nursing. However, a greater percentage of ADN-prepared RNs are employed full time than are BSN-prepared RNs, at 68.4% and 64.2%, respectively (HRSA, 2010a, p. 3-6). Fewer than one third (31.7%) of ADN-prepared RNs compared to more than one third (35.8%) of BSN-prepared RNs are employed part time in nursing or are not employed in nursing. As previously stated, job satisfaction among ADN- and BSN-prepared RNs is about the same.<sup>6</sup>

Employment in hospitals does not vary greatly by the highest level of undergraduate degree, with 646,695 BSN- and 626,119 ADN-prepared RNs reporting employment in that setting. However, more than twice as many ADN- than BSN-prepared RNs are employed in nursing home or extended-care facilities, at 52.7% (71,426) and 24.8% (33,576), respectively (HRSA, 2010a, p. A-15). This demonstrated commitment of ADN-prepared RNs to caring for geriatric and other patients in long-term care facilities is critical to the nation's evolving health-care demands. In response to an aging

population requiring long-term care in general, as well as units providing specialized rehabilitation for stroke and head injury and for Alzheimer's patients, the U.S. Department of Labor projects that the demand for RNs in nursing care facilities will grow more rapidly (25%) than in hospitals (17%) by 2018 (BLS, 2010).

About an equal percentage of RNs whose highest level of nursing or nursing-related education is an ADN or BSN are employed in public or community health settings, at 33.7% (32,781) and 36.4% (35,374), respectively (HRSA, 2010a, p. A-15). These numbers add context to discussions about which educational program types (ADN and BSN) provide competencies preparing RNs to care for patients in nonhospital settings where future nursing care is projected to grow more rapidly than in hospital settings.

Data show that serving in a leadership role in management or administration positions is not a function of preparation for nursing: ADN- and BSN-prepared RNs served in those roles at about the same percentage, at 33.6% (108,445) and 34.8% (112,286), respectively (HRSA, 2010a, p. A-19). These data add context to discussion focused on the competencies that educational programs provide to prepare RNs for management and leadership roles. Absent data from NSSRN on job title by initial nursing education, it is impossible to determine whether earning a BSN has added value for ADN-prepared RNs employed in nursing.

More than 1 million (1,059,402) health-care workers chose to become RNs through ADN programs, making this the largest cohort of nurses with experience in a health occupation prior to becoming RNs.<sup>7</sup> This compares with 691,251 workers in health occupations who chose to

become RNs through either BSN or graduate-level nursing programs. Of the total number of RNs with prior experience, 80% (349,080) of ADN-prepared RNs worked as licensed practical nurses (LPNs), compared to 12.5% (54,651) of BSN-prepared RNs who worked as LPNs. Like health-care workers, the majority (61.6%, or 27,489) of those employed in the medical military corps who chose to become RNs received their initial nursing education in ADN programs—far more than the 29.2% (13,041) who became RNs via BSN or higher-degree programs. These data are particularly relevant in the context of addressing the current needs of thousands of military personnel as the nation engages in an array of efforts to educate, employ, and transition veterans who are returning to their communities (HRSA, 2010a, p. A-5).

ADN-prepared RNs are a sound economic and social investment to communities, including those in rural America where unique factors create disparities in health care not found in urban areas. RNs whose initial nursing education is an ADN are the most likely group of RNs to reside in the state in which they were educated: 75.5% (1,037,450) of ADN-prepared RNs compared with 65.2% (616,944) of a group combining BSN-prepared and graduate-degree-prepared RNs reside in the state in which they were educated (HRSA, 2010a,

p. A-7). In 2008, three quarters (74.8%) of RNs in rural settings received their initial nursing degrees through either an ADN or diploma program, at 57.2% and 17.6% respectively (HRSA, 2010a).<sup>8</sup> Clearly, many rural and underserved communities rely on community colleges for their nursing workforce, which was emphasized by a study by the Urban Institute, which suggested that “medical personnel, including nurses, tend to work near where they were trained, so the distribution of support for nursing education matters” and, furthermore, “that simply producing more nurses may not be effective in alleviating areas’ shortages if attention is not paid to where the nurses are produced” (Urban Institute, 2009, pp. ii, 6).

## Conclusion

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NCLEX pass rates and the 50-plus years in which ADN- and BSN-prepared RNs have worked side by side in caring for patients provides evidence that each type of nursing program graduates quality RNs. Each of these types of programs educates RNs who come into nursing having achieved college degrees in non-nursing disciplines, who will share job titles and satisfaction, and who will aspire to continue their education to achieve additional nursing degrees. Likewise, each type of program uniquely contributes to the nursing workforce.

ADN programs offer the most affordable and efficient access to the nursing profession and provide the nation its largest numbers of RNs, of minority nurses, and of nurses practicing in the states where they attained their degrees as well as in rural America. Additionally, ADN programs provide unparalleled and flexible pipeline opportunities, allowing students with adult responsibilities and other disadvantages to directly earn the RN credential or to achieve the LPN and advance to the RN level. ADN graduates are poised to earn either the BSN or MSN, and they represent the largest number of RNs to choose to earn an additional degree in nursing.

Likewise, BSN programs strongly contribute to the strength of the nation’s nursing workforce, providing the nation with nearly 34% of new RNs and the majority of RNs who advance to achieve graduate-level degrees, which the nation relies on for its nurse specialists, nursing faculty, and nurse researchers. BSN programs are critical to providing traditional (high school to college) students access to the nursing profession and provide greatest access to bachelor’s-level nursing education to ADN-prepared RNs.



# Notes and References

## Notes

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<sup>1</sup>Most data on nursing education are expressed in percentages. While percentages are helpful, it is also important to provide actual numbers to convey magnitude: 25% of 100 has a different impact than 25% of 1,000,000. Because types of nursing programs educate such widely divergent numbers of students, in this brief, we have translated percentage calculations into whole numbers, where possible, in order to enrich the understanding of nursing education.

<sup>2</sup>According to NSSRN 2008 (HRSA, 2010a) approximately 126,106 RNs received their initial training in a bachelor's degree or higher program. Utilizing data in the footnote (Table 2), we reduced the bachelor's degree or higher by 13,325 (master's degree), 954 (doctorate), and 6,425 (other) to arrive at a total of 105,402 (33.6%).

<sup>3</sup>According to NSSRN 2008 (HRSA, 2010a), there were 165,352 Black nurses employed in nursing in 2008 who initially earned ADNs (Table 1). The baseline number of those RNs is from Table 1 and the percentage is from Table 7-6. We calculated 54.7% of 165,352 to arrive at 80,113 and 32.1% of the same number to arrive at 47,013. Likewise, for Hispanic nurses, we used a baseline of 109,387 from Table 1 and the percentage from Table 7-6 to calculate the number of ADNs (55,676) and BSNs (39,610). Note: The values presented in the body of the text differ slightly from those in Figure 3. This is because data related to diversity in the NSSRN 08 report (HRSA, 2010a), as cited in the text body, are weighted to be nationally representative whereas Figure 3 draws from the raw, unweighted data file provided by HRSA (2010b).

<sup>4</sup>The College Board (2009) reported the annual year tuition and fee charge for 2009–2010 at a public 2-year institution as \$2,544. Taking this amount and dividing it by 30—representing 30 credits for full time—results in a total of \$84.80, rounded to \$85 per credit. Note that, for Table 1, yearly changes in tuition and fees, which vary by sector and by year, were not accounted for in the modeling. This analysis does not account for student financial aid influence on the cost to the student, which would result in what is known as a “net price” as opposed to the “sticker price” presented. This distinction is important. What is also important is that the sticker price has a negative effect on an individual's decision to apply to and enroll in an institution.

<sup>5</sup>Based on NSSRN 2008 (HRSA, 2010a), this number was derived by adding the following rows in Table 8, listed in the column “Estimated number initial education associate degree”: 28,296 bachelor's in a related field + 167,887 BSN + 21,136 master's in a related field + 69, 511 MSN + 2,827 doctorate in a related field + 0 doctorate in nursing = 289,657 ADNs. We divided 289,657 by the total number of initial ADNs (1,388,884) to arrive at 20.855%.

<sup>6</sup>From Figure 3-5 (HRSA, 2010a), we added 11.9% of “not employed in nursing” to 19.8% employed part-time in nursing to arrive at 31.7%. Additionally, we added 13.3% of “not employed in nursing” to 22.5% “employed part-time in nursing” to arrive at 35.8%.

<sup>7</sup>Note that the NSSRN 2008 data discussed in the next two paragraphs do not allow for comparison of RNs educated at the undergraduate level. While data are presented for RNs whose initial nursing education was the ADN, data for RNs whose initial education was the BSN are grouped with RNs whose initial education was at the graduate level.

<sup>8</sup>These data represent currently employed nurses who were educated in the United States. These percentages reflect the answers provided by respondents, and are therefore not weighted to be nationally representative.

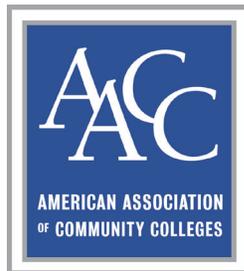
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