

Education Policy Initiatives To Address The Nurse Shortage In The United States

In these economic times, it is shortsighted to allow attractive nursing jobs to go vacant when scores of prospective students are being turned away from nursing schools.

by **Linda H. Aiken, Robyn B. Cheung, and Danielle M. Olds**

ABSTRACT: Employment opportunities are expected to grow much faster for registered nurses (RNs) than for most other occupations. Yet a major shortage of nurses is projected by 2020. A nurse faculty shortage and financially strapped colleges and universities are limiting the ability of U.S. nursing schools to take advantage of historically high numbers of qualified applicants. Increased public subsidies are needed to provide greater access to nursing education, with a priority on baccalaureate and graduate nursing education, where job growth is expected to be the greatest. [*Health Affairs* 28, no. 4 (2009): w646–w656 (published online 12 June 2009; 10.1377/hlthaff.28.4.w646)]

THE DETAILS OF NATIONAL HEALTH REFORM in the United States are being hotly debated, but most proposals include an emphasis on care models that are cost-effective and emphasize primary care, prevention, care management for the chronically ill, and appropriate catastrophic care.¹ Because nurses have a record of success in these priority areas, it is anticipated that health reform along with efforts to improve quality will continue to produce job opportunities for nurses in a variety of roles.

■ **Job growth in nursing.** Some 587,000 new jobs are expected to be created for nurses between 2006 and 2016—a rate of job growth that is much higher than for most other occupations.² Creation of new jobs in combination with large numbers of retirements from an aging nurse workforce is expected to produce a substantial nurse shortage in the next decade. Estimates of the shortage vary from between 300,000 to more than a million by 2020–2025.³ Even a deficit of 300,000 would be nearly three times greater than any nurse shortage experienced in the United States during the past fifty years.⁴

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The United States has a historic opportunity to solve the nurse shortage well into the future by acting now to expand nursing school enrollments at a time when applications are at an all-time high. Indeed, in 2008 more than 40,000 qualified applicants were turned away from baccalaureate and graduate nursing programs because of limitations in educational capacity.⁵

■ **Nurses' role in health reform.** A brief snapshot of recent changes in health services underscores the adaptability of nurses to meet changing national needs and the types of opportunities that are likely to arise and grow in the future. Some 600 million patient visits are made to nurse practitioners (NPs) each year—clearly an important contribution to access at a time of physician shortages.⁶ NPs have recently facilitated the largest expansion of community health centers since the Great Society legislation created them in the 1960s; the centers now see more than sixteen million mostly underserved patients in 7,354 sites around the country.⁷ One thousand newly established retail clinics, staffed largely by NPs, provide three million ambulatory visits a year.⁸ Medical homes, advocated as a component of health reform, will require thousands of NPs and nurse midwives.⁹ Nurse anesthetists provide approximately thirty million anesthetics to patients each year.¹⁰ Implementation of the eighty-hour work week for resident physicians to improve patient safety was made possible by teaching hospitals' adding an estimated full-time nurse for every 5.5 physician residents.¹¹ The additional requirements for residents' work hours proposed recently by the Institute of Medicine (IOM) would add another 6,000 NPs and physician assistants (PAs) to ease the burden on residents.¹² Last but not least, nurses have the respect of the public, and they are essential to patient satisfaction.¹³

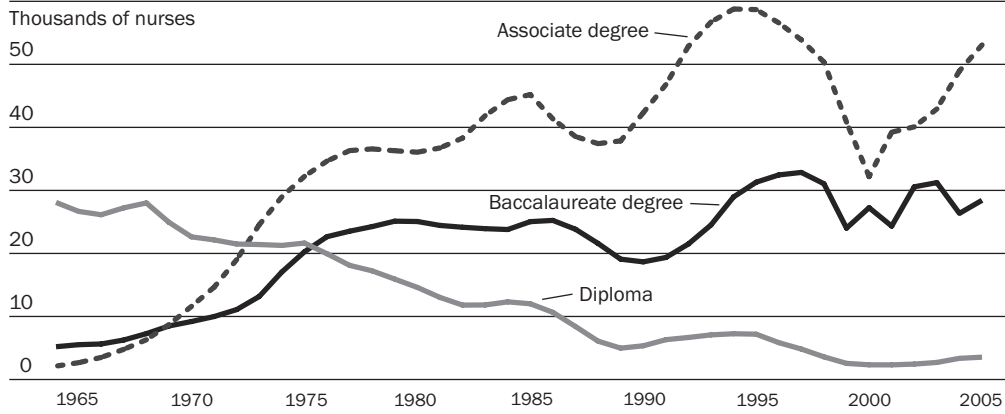
■ **Examining public policy responses.** Expanding nursing school enrollments is challenging, even with a strong applicant pool, because of a worsening nurse faculty shortage, constrained budgets in higher education, and scarce clinical placement options. The purpose of this paper is to examine public policy options that can exploit the strong interest in nursing represented by the virtual flood of applications to nursing schools, to strengthen the nation's nurse workforce for the future.

The Faculty Shortage

Enrollment in nursing schools is at a historic high. In 2005 there were 1,544 nursing schools or programs, with total enrollment of more than 290,000 students.¹⁴ A student population of this size requires a large number of faculty members. The shift over the past forty years from largely hospital-sponsored nursing education to programs in institutions of higher education has increased the educational requirements for nurse faculty (Exhibit 1).

There are currently four educational pathways to becoming a registered nurse (RN) in the United States. Hospital diploma programs are generally three-year programs that do not necessarily result in an academic degree. In the past, most nurses were trained in diploma programs; hospital-sponsored programs now account for less than 5 percent of new graduates. Close to two-thirds of nurses now

EXHIBIT 1
Graduations From Registered Nurse Programs, 1964–2005



SOURCE: Authors' calculations based on data collected by the National League for Nursing, published in its series of *Nursing Data Reviews*, 1984, 2004, and 2008.

receive their initial nursing education in associate degree programs, often in community colleges, that take about three years to complete. A little over 30 percent of nurses receive their basic prelicensure education in four-year colleges and universities, where they receive a bachelor of science in nursing (BSN) degree. The fourth pathway, which is small but growing rapidly, is for students entering nursing school with a bachelor's degree or higher in another field who can earn a BSN in a university program lasting from twelve to eighteen months.

This shift of nursing education into institutions of higher education has resulted in the need for more faculty members with graduate-level education. At the same time, demand for nurses with graduate education is also increasing in clinical settings, particularly for advanced-practice nurses (APNs), nurses in clinical specialties, and nurses in administrative roles. The incomes of nurses in clinical care and administration are higher, on average, than those of most faculty members, which makes the recruitment of nurses into faculty roles difficult.

Much has been written about the nurse faculty shortage and how to solve it.¹⁵ Consideration has been given to raising faculty salaries, new teaching models such as distance learning and simulation that use fewer faculty, mentoring programs to improve success in faculty roles, programs to attract students to teaching careers earlier, and expedited doctoral degrees that train faculty more quickly and at younger ages. A topic that has received less attention is whether the educational composition of the nurse workforce is at odds with the need for more nurses with graduate education for faculty, clinical, and administrative roles. If so, are there policy interventions that might be effective in realigning the educational composition of the workforce over time to better meet future nursing needs?

Production Of Nurse Practitioners

Demand for NPs continues to grow in many parts of the country, and demand may escalate further in view of the projected shortage of physicians, continued efforts to improve quality, and expectations that health reform will expand insurance coverage. However, the number of annual graduations from NP programs peaked in 1998 at about 8,199 and has fallen since to approximately 6,900.¹⁶ The decline in graduations may be another consequence of faculty shortages as well as too little financial assistance to support full-time graduate study. A large share of nurses working on graduate degrees are part-time students supporting their education from employment income and employer tuition reimbursement plans; as employers adapt to the financial downturn, the latter are becoming less widely available.

Educational Composition Of The Nurse Workforce

The 1990 *Seventh Report to Congress on Health Personnel* estimated by the year 2000 there would be half as many baccalaureate- and higher-degree nurses as would be needed.¹⁷ This conclusion has been reiterated by subsequent federal workforce groups, including the National Advisory Council on Nurse Education and Practice (NACNEP), policy advisers to Congress and the U.S. Secretary of Health and Human Services on nursing issues, which urged in 1996 that policy actions be taken to ensure that at least 66 percent of nurses would hold a baccalaureate in nursing (BSN) by 2010.¹⁸ The actual result will fall short of that goal—closer to about 45 percent—including nurses who have already obtained one additional degree to transition from associate degree (AD) to BSN.

■ **Educational composition of the workforce.** We were interested in whether the educational composition of the nurse workforce could be a contributing factor to the shortage of faculty and the flattening of enrollments in APN programs. If the different pathways into nursing produce graduates with very different long-term educational attainment, greater growth in one pathway could negatively affect numbers of nurses with graduate preparation in future nurse cohorts, thus potentially exacerbating the shortage of faculty and advanced-practice clinicians.

To explore this further, we analyzed nonpublic data from the 2004 National Sample Survey of Registered Nurses, a weighted national probability sample of 37,635 licensed RNs. We examined the highest educational qualifications of nurses who received their initial prelicensure education in an AD or BSN nursing program—the two educational pathways that now account for more than 95 percent of new nurse graduates.¹⁹

Of the nearly 1.4 million nurses who obtained an AD or BSN during 1970–1994, 59 percent obtained an AD as their initial degree, and 41 percent obtained a BSN (Exhibit 2). Although only 6 percent of nurses who initially obtained an AD had gone on to earn a master of science in nursing (MSN) degree or doctorate by

EXHIBIT 2**Observed Numbers Of Nurses With Associate Degrees (ADs) And Bachelor Of Science In Nursing (BSN) Degrees With Initial Education Between 1970 And 1994 Who Went On To Obtain Master Of Science In Nursing (MSN) Or Doctoral Degrees, And Expected Numbers Under An Alternative Scenario, 2004**

Observed numbers and percentages	Initial degree		
	AD	BSN	Total
Total nurses licensed in 2004 who obtained their degrees between 1970 and 1994 and whose initial degrees were AD or BSN	819,314	565,797	1,385,111
Percentages of AD vs. BSN nurses	59.20%	40.80%	100.00%
Nurses who earned MSN or doctoral degrees			
Number	47,319	111,598	158,917
Percent	5.80%	19.70%	
Expected numbers and percentages (33% vs. 66%)			
Total nurses licensed in 2004 who obtained their degrees between 1970 and 1994 and whose initial degrees would have been AD or BSN given a 33% vs. 66% split	461,242	923,869	1,385,111
Hypothetical percentages of AD vs. BSN nurses	33.30%	66.70%	100.00%
Nurses expected to earn MSN or doctoral degrees			
Number	26,752	182,002	208,754
Percent	5.80%	19.70%	

SOURCE: Authors' analyses using unpublished data from the National Sample Survey of Registered Nurses, 2004.

NOTE: Doctoral degrees are in any field.

2004, nearly 20 percent of the initially BSN-prepared nurses had done so. Thus, just under 159,000 nurses obtained graduate education in a quarter of a century and thus were eligible to teach in nursing schools or become NPs.

What might have been expected had the percentages of nurses initially trained as AD and BSN nurses been the opposite of what it is now, or 33 percent AD versus 66 percent BSN, which was recommended in 1996 by the federal advisory committee on nursing (NACNEP)? Under that scenario, nearly 209,000 nurses would have been expected to obtain graduate education, or roughly 50,000 more than actually did so (Exhibit 2).

Although AD-prepared nurses were as likely as BSN-prepared nurses to seek another degree, 80 percent of the time they went on only to obtain a BSN. For each 1,000 AD nurses trained, the number who went on to obtain an advanced degree (58) was less than one-third of the number of BSN nurses (197) who did so (data not shown). Using unpublished data from the National Sample Survey of Registered Nurses 2004, we calculated that three times as many AD nurses as BSN nurses would have to be educated to produce as many nurses with graduate degrees who could qualify for faculty positions.

These analyses suggest that having enough faculty (and other master's-prepared nurses) to enable nursing schools to expand enrollment is a mathematical improbability, given current patterns of prelicensure nursing education. This

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finding is similar to that of a cohort analysis of North Carolina nurses using a different database.²⁰ The analyses show that nurses educated initially in baccalaureate programs are significantly more likely than AD nurses to obtain graduate education qualifying them for faculty and advanced-practice roles.

The trend of AD nurses’ constituting a larger share of all new graduates—about two-thirds at present—results in a feeder stream of nurses to graduate study that is simply too small to meet the multiple needs for more-educated nurses in an evolving health care system. The one-third of new nurses who receive their initial education in baccalaureate programs produce the greatest pool of nurses for faculty positions, advanced clinical practice, and administration.

■ **Implications for future policy.** We cannot, of course, change the past, but these numbers have important implications for the future. Among the many useful recommendations considered for solving the faculty shortage in the future, changing the distribution of initial education toward more BSN graduates through targeted public subsidies warrants greater attention. Steering the composition of the future nurse workforce is an objective that lends itself to public policy intervention. Many of the other options for solving the faculty shortage, including curriculum innovations and improved working conditions for faculty, are less amenable to public policies and more the domain of educators assisted by private foundations.

Federal Funding For Nursing Education

■ **Title VII.** The Council on Physician and Nurse Supply recently recommended that nursing school graduations be increased by 30 percent and that public support to facilitate increased output of nursing schools be targeted to encourage more nurses to seek BSN degrees.²¹ Title VIII appropriations are an existing vehicle that could be used for this purpose and has been used successfully in the past to shape the nurse workforce.

The supply of nurses per capita increased 100 percent between 1972 and 1983 following large increases in federal spending, beginning with the Nurse Training Act (NTA) of 1964. It is not possible to disentangle the effects of the training funds from other trends characterizing the period, including an economic downturn that likely brought additional nurses into the job market as well as the expansion of higher education and the inclusion of more women in colleges and universities.²² However, historians credit the NTA with shaping future directions in nursing education by leveraging sustained expansion of baccalaureate and graduate nursing education and facilitating the development of NP education. Because of the NTA, “a generation of women and men found entirely new opportunities in an old profession”—an outcome in today’s tight job market that would be a welcome

result of federal spending.²³

In addition to steering new directions in nursing education, increased Title VIII funding to four-year colleges and universities would help offset the budget cuts affecting these institutions that have resulted in policies to limit undergraduate class size. A capitation mechanism of funding would encourage colleges and universities to increase nursing admissions. In February 2009 Sen. Richard Durbin (D-IL) introduced legislation to amend Title VIII to authorize capitation grants for schools of nursing to increase the number of faculty and students. The American Recovery and Reinvestment Act (ARRA) of 2009 included \$500 million for health professions training, \$300 million of which is through the National Health Service Corps (NHSC). The remaining \$200 million will be divided between Title VIII (nursing) and Title VII (medicine and interdisciplinary) programs. ARRA funds will be helpful in filling unmet needs in existing Title VIII programs in the short term but will not chart new directions for the funding of nursing education.

Any proposal to favor baccalaureate and graduate nursing education with new funds will inevitably be controversial. The primary rationale for targeting is not meant to disparage community colleges and is not driven by an ideological bias. Rather, it is one recommended for two decades by federal workforce policy panels: to achieve a better balance in the educational composition of the nursing workforce, to better meet the varied and changing needs for nurses in an evolving health care system. Community colleges benefit from funding sources not available to four-year institutions. Some states have approved community colleges to grant baccalaureate degrees in nursing, and those schools would be eligible to receive new targeted Title VIII funds should such funds come to pass.

■ **Medicare.** Although Title VIII is generally considered the major source of federal support for nursing education, Medicare funding to hospitals for nursing education is of equal or greater magnitude.²⁴ For 2006 (the last year for which complete Medicare data are available), Medicare payments to hospitals for nursing education costs topped \$152 million, compared to Title VIII expenditures of \$149.7 million (according to the authors' calculations).

Since its establishment in 1965, Medicare has paid hospitals for a portion of the educational costs of training physicians, nurses, and certain paramedical personnel. Payments to hospitals for nursing education costs are currently around 6 percent of total Medicare direct graduate medical education (GME) payments, which totaled \$2.29 billion in 2006. There are important differences between the use of Medicare funds for physician and nurse training.²⁵ Medicare supports only postgraduate clinical training of physicians, yet the majority of Medicare funding for nursing education is at the prelicensure level, in support of RN training. Direct GME expenditures for physicians are linked to the number of physicians in training, while nursing payments accrue to hospitals' general revenues, not to nurse-trainee stipends or even direct funding of nursing education programs.

For primarily historic reasons, Medicare payments for nursing education are

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limited to hospital-operated nurse (and practical nurse) training programs, which now produce less than 5 percent of new RNs. The “provider-operated” provisions of Medicare exclude most prelicensure RN education programs in community colleges, four-year colleges, and universities, where most nurses now receive their education.

Thus, the majority of Medicare funding for nursing education is irrelevant to the nation’s future supply of nurses—in contrast to Medicare support for physician training, which is a critical factor in determining the nation’s future physician supply.²⁶ Although Medicare is a national program, five states that have the most hospital-sponsored diploma RN and practical nurse programs accounted for almost half of Medicare payments for nursing education in 2006: Pennsylvania, New Jersey, New York, Ohio, and Missouri.

In 1997 the IOM recommended that direct Medicare payments for training nurses and physicians should “depend upon the same principles and use the same processes.”²⁷ Specifically, the IOM recommended that Medicare funding for nursing education be redirected to support graduate nursing education, as it does for physicians, thereby reallocating funding from prelicensure RN programs to support clinical training of APNs in inpatient and ambulatory settings. In 1998 the Pew Health Professions Commission called for an end to Medicare funding of diploma nursing programs and a reallocation to graduate training for APNs.²⁸ The redirection of Medicare nursing education funding to a postgraduate focus is supported by the American Nurses Association and the American Association of Colleges of Nursing.²⁹

The rationale for Medicare support for graduate nursing education is the same as the rationale for GME: namely, that nurses in graduate programs are providing significant clinical care to Medicare beneficiaries in hospitals and other settings. Some nurse anesthetist graduate training programs are currently funded by Medicare. An increasing number of other types of APNs train and work in hospital settings. Acute care NP programs are among the larger APN programs. The shortage of physicians, changing medical practice patterns away from the traditional mix of office and hospital practice, and changing work-hour standards for resident physicians are creating increased opportunities for APNs in hospitals.

Redirecting Medicare funding to graduate nursing education could be assisted by establishing a vehicle, such as a trust fund, that would aggregate funding for distribution to the entities that incur the costs of graduate nursing education. Such a vehicle could include payers other than Medicare.³⁰

A full discussion of the mechanisms for best redirecting Medicare funding is beyond the scope of this paper; however, the rationale for doing so is clear. The

Maryland Health Services Cost Review Commission's Nurse Support Program II demonstrates the feasibility of aggregating funding that would normally go to specific hospitals to pay for care into a fund to support graduate nursing education.³¹ The Maryland program is more relevant to the possible redesign of Medicare funding of nursing education than as a model for other states because of the state's unusual all-payer system for hospital financing.

Need For A Unified Strategy

Nursing education and workforce planning lack a unified strategy to create a nursing workforce that is sufficient in numbers and educational mix to meet national health care needs. Prospective students are poorly informed about the career and cost consequences of selecting from among the four pathways to become an RN. Educational trajectories are commonly inefficient, costly to students, and wasteful of public funding. Access to nursing education is difficult, as tens of thousands of prospective students experience costly and frustrating delays in admission to nursing schools.

The educational trajectory of prelicensure education for nurses that has evolved without the benefit of workforce planning is contributing to the challenges and costs of solving an evolving nurse faculty shortage that threatens to derail the needed expansion of the nurse supply. The shortage of faculty and other nurses with graduate education is at least in part a consequence of having too small a proportion of prelicensure education at the baccalaureate level to provide a sufficient stream of nurses into graduate programs.

In these economic times, when jobs are scarce, it is shortsighted to allow attractive nursing jobs to go vacant when scores of prospective students are being turned away from nursing schools. Additional public subsidies for nursing education would make it possible for nursing schools and their parent institutions to expand educational opportunities in nursing. The targeting of new public funding could make an even greater difference by shaping the nurse workforce of the future to be more balanced with respect to the full range of nursing roles that will be needed.

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