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Measuring success: Results from a national survey of recruitment and retention initiatives in the nursing workforce

J. Margo Brooks Carthon, PhD, APRN^{a,*}, Thai-Huy Nguyen, MEd^b, Jesse Chittams, MS^a, Elizabeth Park^a, and James Guevara, MD, MPH^c

^aUniversity of Pennsylvania School of Nursing, Philadelphia, PA

^bUniversity of Pennsylvania Graduate School of Education, Philadelphia, PA

^cUniversity of Pennsylvania School of Medicine, Philadelphia, PA

Abstract

Objectives—The purpose of this study was to identify common components of diversity pipeline programs across a national sample of nursing institutions and determine what effect these programs have on increasing underrepresented minority enrollment and graduation.

Design—Linked data from an electronic survey conducted November 2012 to March 2013 and American Association of Colleges of Nursing baccalaureate graduation and enrollment data (2008 and 2012).

Participants—Academic and administrative staff of 164 nursing schools in 26 states, including Puerto Rico in the United States.

Methods—Chi-square statistics were used to (1) describe organizational features of nursing diversity pipeline programs and (2) determine significant trends in underrepresented minorities' graduation and enrollment between nursing schools with and without diversity pipeline programs

Results—Twenty percent ($n = 33$) of surveyed nursing schools reported a structured diversity pipeline program. The most frequent program measures associated with pipeline programs included mentorship, academic, and psychosocial support. Asian, Hispanic, and Native Hawaiian/Pacific Islander nursing student enrollment increased between 2008 and 2012. Hispanic/Latino graduation rates increased (7.9%–10.4%, $p = .001$), but they decreased among Black (6.8%–5.0%, $p = .004$) and Native American/Pacific Islander students (2.1 %–0.3%, $p = .001$).

Conclusions—Nursing diversity pipeline programs are associated with increases in nursing school enrollment and graduation for some, although not all, minority students. Future initiatives should build on current trends while creating targeted strategies to reverse downward graduation trends among Black, Native American, and Pacific Island nursing students.

*Corresponding author: J. Margo Brooks Carthon, University of Pennsylvania School of Nursing, 418 Curie Blvd., Philadelphia, PA 19104-4217, USA. jmbrooks@nursing.upenn.edu (J.M. Brooks Carthon).

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Keywords

Diversity; Nursing workforce; Pipeline; Health care

Introduction

It's been nearly a decade since the Sullivan Commission Report, "Missing Persons in the Health Professions," and the Institutes of Medicine's "In the Nation's Compelling Interest" were released, each highlighting the lack of underrepresented minorities (URMs) in medicine, dentistry, and nursing (Sullivan, 2004; Smedley, Butler, & Bristow, 2004). The health care professions have responded to the lack of diversity within their ranks through the development of a range of "pipeline" initiatives created to attract and retain historically underrepresented minority students into the health professions. For instance, the American Association of Medical Colleges' 3000 by 2000 diversity initiative sought to increase the number of URMs entering the medical profession. Although the initiative fell short of its numeric goals, it did have a number of important successes, which included establishing pipeline programs as an effective intervention to support students from college to graduate education and increasing URM matriculates to medical schools by 36%, thereby reversing over 20 years of negative enrollment (Terrell & Beaudreau, 2003). Similarly, within dentistry, the Robert Wood Johnson Foundation and California Endowment provided funding for a large-scale dental pipeline initiative in 2002, which resulted in a 77% increase in URM applicants and a 27% increase in URM enrollees (Andersen et al., 2009). Although a number of environmental scans and pipeline program evaluations have examined the impact of diversity initiatives in medicine and dentistry, no studies to date have undertaken similar evaluations of aggregate diversity initiatives in nursing (Terrell & Beaudreau, 2003; Formicola et al., 2009).

Nurses represent the largest proportion of health care workers in the United States, with an estimated 3 million individuals currently licensed nationally (U.S. Department of Health and Human Services, 2008). However, URMs collectively make up only a quarter of the nursing workforce (Health Resources and Services Administration [HRSA], 2013). Recent estimates suggest that minorities currently comprise a third of the U.S. populace (Institute of Medicine [IOM], 2011), but are expected to increase to 54% by 2050 (Bernstein & Edwards, 2008). These figures reveal that although nursing has made progress toward diversifying in recent decades, it has not kept pace with demographic trends. The risks associated with a health care work-force that does not reflect the shifts in the nation's demographic profile includes widened threats to minority health, gaps in cultural and linguistic competence, decreased patient satisfaction, and reduced access and use of health care services (Meghani et al., 2009).

In this study, we address the lack of aggregate data related to diversity initiatives in nursing through the conduct of a national survey of schools of nursing in the United States. The results of this study revealed core components of diversity pipeline programs and their impact on graduation and enrollment.

Background

Diversity pipeline programs traditionally promote the academic and professional achievement of minorities in the profession. According to the Institute of Medicine's "Future of Nursing Report," "creating bridge programs and educational pathways between undergraduate and graduate programs... appears to be one way of increasing the overall diversity of the student body and nurse faculty" (IOM, 2011, p. 208; NCEMNA, 2010). Pipeline programs represent a set of strategic interventions to address the persisting challenges experienced by individuals and groups in accessing a profession or field. Within the health professions, pipeline programs generally target racial minority groups or those from low socioeconomic backgrounds (HRSA, 2006). Pipeline programs in nursing possess several aims ranging from mere exposure to nursing careers to support of student achievement at every postsecondary level (i.e., BSN to the PhD). Structurally, programs are focused on one or all of the following goals: (1) recruitment and increasing enrollment, (2) maintaining student engagement and retention, and (3) increasing certification/degree completion.

Although varied in nature, pipeline programs attempt to address the many barriers and obstacles that make careers in health care out of reach for many minorities. Common barriers experienced by URM nursing students include academic underpreparation; English as a second language; and unwelcoming institutional climates that together can undermine the confidence and, ultimately, the achievement of those students (Amaro, Abriam-Yago, & Yoder, 2006). Despite increased federal and philanthropic efforts to increase minority representation, we know very little about nursing diversity pipeline programs. Subsequently, our study asks, "What works?" and "What features are most effective in assisting minorities to pursue and persist to graduation in nursing?" Although several studies have examined the effectiveness of pipeline programs in nursing, three major limitations abound. First, there is a general lack of critical evaluations of existing nursing diversity pipeline programs. Second, much of the published research is based on evaluations of single programs or institutions, which suggests that findings, although informative, may not be generalizable to other nursing programs (Olinger, 2011; Escallier & Fullerton, 2009; Gardner, 2005). Third, measurement of effectiveness often lacks institutional comparisons (Degazon & Mancha, 2012; Sutherland, Hamilton & Goodman, 2007). Because of these limitations, it is difficult to discern which diversity program components are most commonly linked to programmatic success.

Methods

Survey Development

To examine the institutional and programmatic features of nursing diversity pipeline programs, we conducted an electronic survey of nursing schools in the United States. The survey was developed by the investigators and informed by interviews with 15 nursing school faculty involved with the administration of nursing diversity pipeline programs. Our pipeline program components were additionally identified through a systematic review of the literature. We field tested our survey items with a separate set of three nursing administrators/diversity pipeline content experts to assess clarity and comprehensiveness.

The survey was approved by the institutional review board at the University of Pennsylvania (816402).

Identifying Nursing Diversity Pipeline Measures

The investigators conducted a content analysis of key informant interviews and a systematic review of the literature. As a result, key themes emerged that were used to conceptualize pipeline programs according to their structural (i.e., institutional type, ownership status, and degree-conferring status) and operational characteristics (i.e., program goals, targets, and funding sources). Operational characteristics of pipeline programs also included salient features such as financial support, aid in completing nursing application, internships, academic support, community service, partnerships with local organizations, diversity workshops, career development, distance learning, residential experience, counseling, mentoring, and research opportunities. Throughout the remainder of the text, we refer to this collection of programmatic interventions as “program measures.”

Data Sources

To complete our survey, we drew a purposive sample from two sources: (1) schools of nursing with current or past Nursing Workforce Diversity (NWD) program funding, provided by the Health Resource Services Administration (HRSA) between 2008 and 2012, and to improve statistical power and gain a more uniform distribution across different geographic regions, we drew additional nursing schools from the (2) American Association of Colleges of Nursing (AACN) roster file. The NWD program was established in 1989 to address the shortage of URMs in nursing by providing funds to institutions to develop pipeline programs (Title VIII, Section 821 of Public Health Service Act, 1989). Between 2008 and 2012, the NWD program provided funding to over 50 grantees located across 26 states, including Puerto Rico (HRSA, 2008–2013). AACN’s membership includes 87.8% ($n = 768$) of all BSN nursing schools in the United States ($N = 876$) and is comprised of both public and private institutions and a mix of baccalaureate, graduate, and postgraduate programs (AACN, 2013). AACN data also provided enrollment and graduation data by race and ethnicity for 2008 and 2012 for our pipeline institutions and for a random sample of 47 survey respondents without diversity pipeline programs. From the NWD and AACN sources, we identified 424 schools for inclusion in our sample, which represents over 48% of all BSN nursing schools in the United States.

Contact information for our sample was verified through e-mail and telephone to determine the appropriate personnel who would be able to answer questions related to nursing diversity programming. We also ascertained school of nursing characteristics, including ownership status and institutional type from survey respondents. This information was then validated by the research team through a website scan of each institution in our sample. To preserve confidentiality, data about survey respondents were deidentified, and each institution was provided with a unique numerical identifier.

Survey Administration

DATSTAT, a data management and survey firm, administered the survey between November 2012 and March 2013. Participants received an initial e-mail, which included a

cover letter, the survey link, and an offer to receive an electronic report for their review at the culmination of the study. To encourage survey completion, nonrespondents received three e-mail reminders and one telephone call.

Analysis

We constructed means and frequencies to describe the characteristics of (1) pipeline and nonpipeline nursing institutions, (2) survey respondents, and (3) the prevalence of diversity program measures in our sample. Chi-square statistics were performed to examine URM graduation and enrollment trends within pipeline programs between 2008 and 2012. Analysis was performed on SAS, version 9.3 (SAS Institute, Cary, NC). The significance level was set at .05.

Results

Of the 424 schools, 164 completed the survey, which resulted in a 39% response rate. Tests for nonresponse bias revealed no significant institutional differences between nursing school respondents and non-respondents. Our survey included two exclusion questions: (1) Is increasing the number of underrepresented minorities a part of the mission statement or strategic goal for your institution and (2) Does your school have a pipeline program? Of the 164 respondents, 119 (73%) reported an institutional commitment to increase URM representation. To be included in the survey, respondents had to answer “yes” to both questions. Of these institutions, 33 (20%) reported having a structured diversity pipeline program.

Institutional Characteristics of Sample

In Table 1, we present the institutional characteristics of our sample. Twenty percent of the nursing schools (33/164) in our sample reported having an established nursing diversity pipeline program. Approximately 64% of nursing school pipeline programs were located within public institutions. In contrast, 52.6% of nursing schools without pipeline programs were situated in private institutions ($p = .11$). Just over 15% of nursing schools with pipeline programs and 7.3% of schools without pipeline programs were located within Hispanic-serving institutions ($p = .15$). Alternatively, 3% of nursing schools with pipeline programs were identified as a historically Black college and university ($p = .53$). Fifty-one percent of schools with pipeline programs offer a PhD in nursing compared with 21.9% of nonpipeline schools ($p = .001$). Nursing schools with pipeline programs were evenly located throughout the country, with the most (at 30.3%) located in the Northeast. Although the difference was not significant, we found that nursing schools without programs were primarily located in the Midwest (30.7%) and South (32.1%) ($p = .38$).

Demographics of Survey Participants

Table 2 presents the demographic characteristics of our survey participants with pipeline programs. The majority of our pipeline program respondents were white (69.7%) and female (91%) who have been in their current posts for an average of 4 years. Six percent of our participants were of Hispanic ethnic origin. The mean age of our pipeline program respondents was 40. Fifty-eight percent of our survey participants ($n = 19$) self-identified as

members of the standing faculty (deans of nursing, assistant, and associate or full professors).

Operational Components of Nursing Diversity Programs

In Table 3, we present the operational components of nursing diversity pipeline programs. Seventy-four percent of nursing schools have programs focused on supporting students to the BSN with the specific goals of introducing URM students to the nursing profession (85%) and minimizing attrition (85%). These programs were primarily targeted toward Black/African American (91%) and Hispanic/Latino individuals (91%), typically beginning in the junior (67%) and/or senior levels of high school (57%). Thirty-five percent of pipeline programs recruit Associate Degree in Nursing (ADN) students, and 41 recruit community college students. Three programs (9%) targeted certified nursing assistants for their pipeline applicant pools. A dedicated office of diversity (30%) and/or a dean of diversity (21%) were not prominent features at the majority of pipeline programs. Funding for 17 (52%) of these programs stemmed from HRSA's Nursing Workforce Diversity program. However, most pipeline programs reported a mixture of external and/or internal funding to support diversity programming.

Diversity Program Measures

Table 3 also reveals the specific programmatic activities included across pipeline programs. Academic support (88%) and mentoring (85%) stood out as the two most prevalent programs measures in pipeline programs. Psychosocial and financial support were also dominant features at 60.6% ($n = 20$) and 57.6% ($n = 19$), respectively. Pipeline programs were less likely to include distance learning or webinar features (12%) or research opportunities (18%).

Diversity Program Outcomes

Between 2008 and 2012, URM nursing school enrollment across pipeline programs increased significantly for Hispanic (9.2%–10.4%, $p = .01$), Asian (10.6%–11.7%, $p = .004$), and Native Hawaiians/Pacific Islander students (0.2%–0.4 %, $p = .04$). Enrollment decreased among Native American and Alaskan Indian students (0.6%–0.5%, $p = .04$). During the same time period, graduation rates decreased among Black/African American (6.8%–5.0%, $p = .004$) and Native Hawaiians/ Pacific Island students (2.1%–0.3%, $p = .001$). Graduation rates significantly increased among Hispanic/ Latino students (7.9%–10.4%, $p = .001$) (Table 4).

In contrast, between 2008 and 2012, URM enrollment in nursing schools without diversity pipeline programs revealed decreases in enrollment for Black/African American students (7.1%–6.3%, $p = .01$), Asian (8.5%–7.0%, $p = .001$), and non-U.S. residents (1.5%–1.0%, $p = .001$). However, enrollment increased among Native Hawaiian/Pacific Islanders (0.07%–0.4%, $p = .001$). During the same period, graduation rates decreased for whites (74.9%–71.4%, $p = .003$), but they increased among Hispanic/Latino (4.5%–5.9%, $p = .004$) and Native Hawaiian/Pacific Island students (0.07%–0.4%, $p = .002$) (Table 5).

Discussion

This study represents the first to undertake a national examination of nursing diversity pipeline programs in the United States. These findings have immediate policy implications as health care reform unfolds and increased numbers of minorities enter the health care market place. Despite the urgent need to continue efforts to diversify the health care professions, our findings reveal that 20% of nursing schools have a formal diversity pipeline program in place. Nevertheless, data from nursing pipeline programs suggest meaningful improvements in graduation and enrollment for some but not all minority groups. Asian and Hispanic students, in particular, are enrolling into nursing programs with pipeline programs at increased rates. Hispanic graduates of nursing pipeline programs have increased by nearly 3% in 5 years. Conversely, enrollment for Black students remained static during the same period, whereas graduation rates have dropped significantly. The decreased graduation rate among Black students is especially concerning and may be caused by a host of factors including reduced funding at some HBCUs (which train and graduate a disproportionate number of Black nurses) as well as increased financial constraints during the recent economic down turn (Gasman, 2013).

Notably, our findings suggest that pipeline programs are outperforming nonpipeline programs in enrolling Asian and Black students, whereas Hispanic and Native Hawaiian/Pacific Island students have witnessed graduation success. The decline in enrollment among Black and Asian students may be attributed to several factors related to the 2008 recession. In particular, the rising cost of college tuition because of declines in federal and state support may have deterred URM enrollment (Finney, Perna, & Callan, 2014). Between 2007 and 2008, the cohort of freshman entering college grew by 11% at both for-profit institutions and community colleges (Pew Research Center, 2010). Although these results should be taken with some caution, these trends appear to suggest that investments in pipeline programs have proven helpful in engaging URM students and communities in pursuing nursing careers. The noted gaps in pipeline program graduation success may signal the need for further resources to decrease attrition among some minority groups.

Common Attributes of Nursing Pipeline Program

Our results are the first to our knowledge to outline the common attributes of nursing diversity pipeline programs. Although the majority of pipeline programs in our sample provide a broad array of programmatic offerings, our findings suggest three program measures that were dominant across the majority of pipeline programs: mentoring, academic, and psychosocial support.

Nearly all of our survey respondents reported that mentoring was a critical component of their programming. Such mentoring support included pairing students with nursing faculty, which may allay students' concerns or instill URM students with a sense of professional identity. Programs such as the Meirhoff program at the University of Maryland Baltimore County have shown the powerful effect of role models, mentors, and dedicated staff in their efforts to increase URMS in science, engineering, math, and technology (Summers & Hrabowski, 2006). Similarly, nursing diversity pipeline programs such as the Coppin Academy for Pre-Nursing Success at Coppin State University provides workplace

mentoring, which pairs students with a professional nurse at a local hospital, providing students with real-world exposure to the nursing profession (Gordon & Copes, 2010). Alternatively, the use of peer mentors provides students with an individual with whom they can commiserate and who encourages trust and accountability (Gasman, 2013).

Psychosocial support was also a prominent feature of most nursing diversity pipeline programs. Support in the form of professional counselors or even peer-led groups can be a powerful mechanism to address the challenges that negatively influence URM student academic achievement (Gardner, 2005). In a field that requires students to satisfy science and clinical requirements, the nursing curriculum can be a daunting journey. The provision of a counselor can help stem the effect of a “weed out culture” that dominates the sciences (Seymour & Hewitt, 1997). Although inadequate academic preparation may also account for lower retention and graduation rates among URM students, it can also be attributed to personal and nonacademic factors—family and work obligations—that vie for their attention. For instance, on average, URM students are more likely to work several jobs to support themselves, their immediate family, or other dependents (Perna, Gasman, Gary, Lundy-Wagner, & Drezner, 2010; Evans & Greenberg, 2006). They do so while balancing their schoolwork in order to maintain sufficient progression through their programs. Striking this fine balance is a struggle that few students know how to achieve without the assistance of others (Newman, 2000). Psychosocial support addresses the emotional challenges brought on by responsibilities and stressors that emerge above and beyond just the academic context. Helping URM students to identify resources within the nursing school before a crisis point serves as an important component to many psychosocial support offerings.

The inclusion of academic support services, such as tutoring and study skills, as components of pipeline programs is believed to have an immense influence on students’ persistence and graduation. At first, this finding may not seem surprising, but the benefits of academic support may include more than the conventional practices of providing students with more time and focused attention (Abrams & Jernigan, 1984). Research has shown that students’ perceptions of academic support are related to their perceptions of their own sense of belonging and ability to succeed in the program (Curtin, Stewart, & Ostrove, 2013). First, a concentrated effort to help students understand the material signals to students that they are actively being cared for and not forced to fend on their own. Second, as more time and attention is given to help students succeed with the material, their perception of their current competencies may lead to greater confidence in the subject area and positively influence their aspirations and occupational pursuits (Hope, Chavous, Jagers, & Sellers, 2013).

Across the three program measures, the presence of others (i.e., faculty, staff, and peers) in the form of mentors, psychosocial support, and academic support may be linked to the achievement of URM students. Access to a nursing program alone cannot fully attribute to URM students’ ability to graduate. Because URM students enter college at an academic and financial disadvantage, these critical services should be consistently provided so that each student has an opportunity to succeed.

Limitations

Although our findings reveal promising results among pipeline programs, we acknowledge that further evaluations comparing different models of pipeline programs are required to assess which program measures are most effective. Such research must also seek to understand whether individual pipeline program measures work in isolation or are of additive value when conducted in concert with one another. Although our sample represented nearly half of the BSN nursing schools in the country, our final sample of pipeline programs may limit the study's generalizability. Specifically, we are unable to capture pipeline efforts within ADN programs that educate proportions of underrepresented minority nurses similar to BSN programs (National League for Nursing, n.d.). Despite this limitation, we note that 35% of the pipeline programs in our study targeted ADN programs as a source of recruitment for URM student advancement to the BSN. Lastly, although our response rate of 39% is consistent with other biomedical surveys, which have noted a slight decline in recent years, we acknowledge that our findings might have been altered had the number of responding institutions been larger (Davern et al., 2010; Groves et al., 2006).

Conclusion

Nursing joins medicine and dentistry in their efforts to increase access and opportunity into the health care professions. These efforts are particularly timely because record numbers of underrepresented minorities are expected to enter into the health care market with the passage of the Affordable Care Act. Given that minority health care providers are more likely to work in underserved communities, investments in a diverse health care workforce presents a ready solution to meeting access and service needs. Findings from this research contribute to current workforce diversity efforts by identifying program measures that are core to the mission and vision of diversity program in nursing. Our results also highlight promising trends in graduation and enrollment rates for some URM students and a "call to action" for others.

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Table 1

Characteristics of Nursing Schools with and without Diversity Pipeline Programs, 2012–2013

Characteristic	Schools with Diversity Pipeline Programs (<i>n</i> = 33)	Schools without Diversity Pipeline Programs (<i>n</i> = 131)	<i>p</i> Value
Total schools, no. (% of 164)	33 (20.1)	131 (79.8)	
Public/private, no. (% of total)			
Public	21 (63.6)	62 (47.3)	
Private	12 (36.4)	69 (52.7)	.09
Minority-serving institution, no. (% of total)			
Historically Black colleges and universities	1 (3.03)	2 (1.5)	.556
Hispanic-serving institutions	5 (15.2)	10 (7.5)	.171
Tribal colleges and universities	0 (0)	4 (3)	.313
AANAPISI	0 (0)	3 (2.3)	.384
Region, no. (% of total)			
Northeast	10 (30.3)	33 (24.8)	
Midwest	7 (21.2)	42 (31.6)	
South	9 (27.3)	43 (31.6)	
West	7 (21.2)	16 (12.3)	.386
PhD granting institution, no. (% of total)	17 (51.5)	29 (21.8)	.001*

AANAPISI, Asian American Native American Pacific Islander Serving Institutions.

Values may not add up to 100 because of rounding.

* .001.

Table 2

Demographics of Survey Participants, 2013

Characteristics	Participants
Mean age (SD)*	39.8 (9.3)
Sex, no. (% of 33)	
Male	2 (6.1)
Female	30 (91)
No Response	1 (3)
Race, no. (% of 33)	
White	23 (69.7)
African American	5 (15)
Asian	2 (6)
Native American/Alaska Native	1 (3)
Other/no response	2 (6)
Ethnicity	
Hispanic	2 (6)
Rank/position, no. (% of 33)	
Administrator	8 (24)
Assistant professor	2 (6)
Associate professor	8 (24)
Professor	5 (15)
Emeritus	1 (3)
Dean	4 (12)
Other*	5 (15)
Years at position (SD)	4 (1.4)

SD, standard deviation.

Values may not add up to 100 due to rounding.

* Other includes assistant dean, office of diversity and inclusion, director of nursing workforce diversity program, diversity coordinator, associate dean of multidisciplinary college, and program coordinator.

Table 3

Characteristics of Nursing Diversity Pipeline Programs

Total Schools, no. (% of 33)	
Structural characteristics	
Years pipeline program established	6.38 (SD 3.5)
Degrees offered	
ADN	2 (6)
BSN	31 (94)
MSN	26 (79)
DNP	17 (52)
PhD	17 (52)
Operational characteristics	
Pipeline program type	
Health career academy	13 (38)
BSN pre-entry	25 (74)
Bridge to the MSN	6 (17)
Bridge to the DNP	6 (18)
Bridge to the PhD	4 (12)
Other*	5 (15)
Pipeline institutional support	
Dean of diversity or diversity officer	7 (21)
Dedicated office of diversity	10 (30)
Both dean and office of diversity	4 (12)
Neither	12 (36)
Pipeline funding sources	
HRSA/NWD	17 (52)
RWFI/NCIN	2 (6)
Institutional support (i.e., provost's office)	17 (52)
Other	15 (46)
Pipeline program goals	
Introduce URM students to broad field of health care	19 (56)
Introduce URM students to the nursing profession	29 (85)
Retention and support of URM students	29 (85)
Introduce URM to advanced nursing degrees	22 (65)
Cultivate leadership	20 (59)
Pipeline program targets by race/ethnicity	
Black	31 (91)
American Indians/Alaskan Natives	18 (53)
Asian	13 (38)
Pacific Islanders/Hawaii Natives	15 (44)
Hispanics and Latino/as	31 (91)
Pipeline source	

Total Schools, no. (% of 33)	
K-12	21 (62)
Second BA/BS students	21 (62)
Associate degree nurses	12 (35)
Certified nursing assistant	3 (9)
Community college students	14 (41)
Nonnursing students from same institution	9 (26)
Nonnursing students from different institution	8 (24)
Pipeline begins at the following levels	
High school seniors	12 (57)
High school juniors	14 (67)
High school sophomores	9 (43)
High school freshman	6 (29)
Middle school	6 (29)
Elementary school	1 (5)

HRSA/NWD, Health Resource and Service Administration Nursing Workforce Diversity; RWFJ/NCIN, Robert Wood Johnson Foundation New Careers in Nursing.

* Text answers: upward bound, articulation agreements with community colleges, RN-BSN program, and summer high school camp.

Underrepresented Minority Nursing Student Enrollment and Graduate Rates across Nursing Diversity Pipeline Programs, 2008 and 2012

Table 4

Race/ethnicity	Enrollment, <i>n</i> (%)			Graduation, <i>n</i> (%)		
	2008	2012	χ^2 <i>p</i> Value	2008	2012	χ^2 <i>p</i> Value
White	4,804 (64.2)	5,393 (62.9)	.07	1,539 (62.8)	1,890 (62.8)	.98
Black/African American	522 (7.0)	626 (7.3)	.43	167 (6.8)	150 (5.0)	.004 [†]
Hispanic/Latino	685 (9.2)	888 (10.4)	.01 [†]	193 (7.9)	313 (10.4)	.001 [‡]
Asian	794 (10.6)	1,000 (11.7)	.04*	307 (12.5)	386 (12.8)	.74
Native American/Alaskan Indian	41 (0.6)	39 (0.5)	.04*	14 (0.6)	9 (0.3)	.12
Native Hawaiian/Pacific Islander	13 (0.2)	34 (0.4)	.001 [‡]	51 (2.1)	9 (0.3)	<.0001 [‡]
Non-U.S. Resident	166 (2.2)	165 (1.9)	.19	42 (1.7)	48 (1.6)	.73
Unknown	453 (6.1)	431 (5.0)	.004 [†]	139 (5.7)	205 (6.8)	.084

* .05.

[†] .01.[‡] .001.

Underrepresented Minority Nursing Student Enrollment and Graduate Rates across Nursing Diversity Nonpipeline Programs, 2008 and 2012

Table 5

Race/ethnicity	Enrollment, <i>n</i> (%)			Graduation, <i>n</i> (%)		
	2008	2012	χ^2 <i>p</i> Value	2008	2012	χ^2 <i>p</i> Value
White	9,295 (69.6)	10,268 (70.0)	.43	3,110 (74.9)	3,352 (71.5)	.003 *
Black/African American	951 (7.1)	937 (6.3)	.01 *	295 (7.1)	305 (6.5)	.26
Hispanic/Latino	747 (5.6)	856 (5.8)	.37	186 (4.5)	275 (5.9)	.004 *
Asian	1,138 (8.5)	1,021 (7.0)	<.001 †	268 (6.5)	313 (6.7)	.7
Native American/Alaskan Indian	111 (0.8)	96 (0.7)	.9	29 (0.7)	34 (0.7)	.88
Native Hawaiian/Pacific Islander	10 (0.07)	58 (0.4)	<.001 †	3 (0.07)	19 (0.4)	.002 *
Non-U.S. Resident	201 (1.5)	151 (1.0)	<.001 †	72 (1.7)	65 (1.4)	.18
Unknown	902 (6.7)	12,750 (8.7)	<.001 †	188 (4.5)	325 (6.9)	<.001 †

* .01.

† .001.