A study to detect the presence of racial/ethnic pay disparities among registered nurses (RNs) in U.S. hospitals

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A Study to Detect the Presence of Racial/Ethnic Pay Disparities

Among Registered Nurses (RNs) in U.S. Hospitals

by

Jean Moore, MSN, BSN

A Dissertation

Submitted to the University at Albany, State University of New York

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A Study to Detect the Presence of Racial/Ethnic Pay Disparities
Among Registered Nurses (RNs) in U.S. Hospitals

by

Jean Moore, MSN, BSN

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Abstract

For this research study, a regression decomposition of hospital RN salaries was conducted to detect the presence of racial/ethnic pay disparities for hospital RNs working in the most populous metropolitan statistical areas in the United States. Regression decomposition compares two groups and disaggregates the total economic value of human capital and job characteristics into constituent direct and indirect monetary worth. Differences in the value of the same characteristic by various racial/ethnic groups have been commonly used as a measure of discrimination in earnings. The data for this analysis were drawn from the 2008 National Sample Survey of Registered Nurses (NSSRN), a federally funded survey of RNs which was conducted every four years from 1977 through 2008.

The analysis found that both Black/African American and Hispanic/Latino hospital RNs, who are underrepresented in nursing compared to their presence in the population, earned less than non-Hispanic White hospital RNs, while Asian/Pacific Islander hospital RNs earned more than non-Hispanic Whites. Specifically, Hispanic/Latino RNs earned $1.91 less than non-Hispanic White RNs, Black/African American RNs earned $.73 less than non-Hispanic White RNs; and Asian/Pacific Islander RNs earned $.89 more than non-Hispanic White RNs. The findings indicate that 1) pay disparities exist between underrepresented minority hospital RNs, i.e., Black/African American RNs and Hispanic/Latino RNs compared to Asian/Pacific Islander RNs and non-Hispanic White RNs; 2) these disparities could not be fully explained by controlling for the relevant characteristics of these RNs; and 3) characteristics of hospital RNs usually associated
with higher earnings did not produce the same levels of reward in terms of earnings for Black/African American and Hispanic/Latino hospital RNs compared to non-Hispanic White and Asian/Pacific Islander hospital RNs.

Policy implications of this research study strongly suggest the need for a greater commitment to nursing workforce diversity from providers, educators, and the profession itself. Strategies to increase diversity and reduce pay disparities include increasing recruitment of Blacks/African Americans and Hispanics/Latinos into registered nursing; supporting career development for Black/African American and Hispanic/Latino RNs, including both educational and professional advancement; and increasing the presence of Black/African American and Hispanic/Latino RNs in nursing leadership positions.
Overview

Despite longstanding concerns about cultural competence and the lack of racial and ethnic diversity in the registered nursing workforce, a survey conducted in 2006-07 found that minority (i.e., Hispanic/Latino, Black/African American, and Asian/Pacific Islander) RNs working in hospitals in the central counties of the New York City metropolitan statistical area (MSA) earned less on average than their non-Hispanic White counterparts (McGinnis et al., 2008). While wage gaps by race and ethnicity have long been acknowledged, much of the blame has traditionally been ascribed to lower educational attainment and the segregation of racial/ethnic minorities into lower paying occupations. The presence of within-occupation wage gaps, however, raises questions about the sources of earnings inequality. Given the importance of a diverse and culturally competent nursing workforce to ensure adequate care to all Americans, there is a critical need to study further the potential presence of these disparities and to better understand the reasons for them since they could discourage minority entrants into the nursing profession.

For my dissertation research, I conducted a regression decomposition of hospital RN salaries to detect the presence of racial/ethnic pay disparities among all hospital RNs working in the most populous MSAs in the U.S. The data for this analysis were drawn from the 2008 National Sample Survey of Registered Nurses (NSSRN). The NSSRN was a federally funded sample survey of RNs which was conducted every four years from 1977 through 2008.
To the extent possible, this study replicated a 2008 exploratory study of racial/ethnic pay disparities among hospital RNs in New York City conducted by the Center for Health Workforce Studies. Findings from that study suggested the presence of racial/ethnic pay disparities among hospital RNs in New York City with non-Hispanic White RNs earning more than their minority counterparts (Blacks/African Americans, Hispanics/Latinos, and Asians/Pacific Islanders),¹ even after controlling for human capital and job characteristics associated with RN earnings (McGinnis et al., 2008).

¹ Hereafter, racial/ethnic categories are shortened: non-Hispanic White is referred to as White; non-Hispanic Black/African American is referred to as Black; Hispanic/Latino is referred to as Hispanic, and Asian/Pacific Islander is referred to as Asian.
Literature Review

Educational Pathways for Registered Nursing in the U.S.: Implications for Diversity

Registered nursing is the single largest health profession in the country, with over 3 million active RNs in the U.S. in 2008 (USDHHS, 2010). RNs provide a wide array of services, including prevention and disease treatment as well as health promotion for individuals, families, and communities. RNs plan, manage, and provide patient care in order to promote the physical, emotional, and social well-being of patients and their families. RNs are critical to the delivery of health care services across a wide array of settings, including hospitals, nursing homes, ambulatory care centers, hospice programs, home health agencies and local health departments. Given their roles and responsibilities, RNs clearly have the potential to substantially influence health outcomes of the U.S. population (U.S. Department of Labor, 2010).

There are three educational pathways into registered nursing in the U.S. The hospital-based RN diploma program was the first type of nursing education program introduced in the U.S. in the decade after the Civil War (mid to late 1870s.) These programs were typically three years in length and conferred a nursing diploma (in lieu of an undergraduate college degree in registered nursing). Diploma programs were the main pathway into nursing through the first half of the 20th century. While still available today, the number of these programs in the U.S. is declining. The two primary types of RN educational programs in the U.S. today are 1) college or university programs, typically four years in length, leading to a bachelor’s of science degree in nursing (BSN), and 2) community college or junior college programs, typically two years in length, leading to
an associate degree in nursing (ADN). BSN programs emerged in the early 1900s, while ADN programs were introduced in the early 1950s (Mahaffey, 2002; Orsini-Hain, 2009; White, 2001).

Lack of racial/ethnic diversity in the registered nursing profession may, in part, be traced to historical discriminatory practices of professional nursing associations, beginning in the early 1900s, which sought to deny minority entry into the profession (The Sullivan Commission, 2004; Glazer, 1991; Carnegie, 1991; Hines, 1989). Efforts to professionalize registered nursing led to professional association control of nursing education, licensure, and scope of practice. It also led to segmentation in nursing, with Blacks having fewer opportunities for registered nursing education and training and more opportunities for LPN and nursing aide training. Consequently, lack of racial/ethnic diversity in registered nursing may stem in part from historical patterns of unequal access to registered nursing education (The Sullivan Commission, 2004; Giddings, 2005; Schemieding, 2000; Vaughn, 1997).

An analysis of NSSRN data (1980-2008) on initial nursing degree by race/ethnicity finds that in 1980, RNs of all racial/ethnic backgrounds were most likely to report nursing diplomas as their initial nursing degree (Table 1). A higher percentage of White RNs (64.4%) reported a diploma as their initial nursing degree, compared to all other racial ethnic/ethnic groups. A higher percentage of Black RNs reported an ADN as their initial degree in 1980 (39.0%), compared to all other racial/ethnic groups. Further, a higher

\[2\] Data from the 1980 NSSRN were used for comparison with 2008 because the 1977 NSSRN database aggregated RNs reporting “BSN or higher,” however this was not done in subsequent surveys.
percentage of Asian RNs reported a BSN as their initial degree in 1980 (36.9%), compared to all other racial/ethnic groups. Since diploma programs were the predominate type of nursing education program in the first half of the 20th century, the smaller percentages of minority RNs reporting a diploma as their initial nursing degree may in fact reflect the lack of access to these education programs cited previously. Between 1980 and 2008, the percentage of RNs reporting a nursing diploma as their initial nursing degree steadily declined across all racial/ethnic groups, while the percentage reporting ADNs as the initial nursing degree grew for most racial/ethnic groups and the percentage reporting BSNs as the initial nursing degree grew for all racial/ethnic groups.
Table 1. Percent of RNs by Initial Nursing Degree and Race/Ethnicity, 1980-2008

<table>
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<tr>
<td>Diploma</td>
<td>40.0</td>
<td>36.8</td>
<td>33.6</td>
<td>31.7</td>
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<td>20.9</td>
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<td>46.3</td>
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<td>30.8</td>
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<tr>
<td>Diploma</td>
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<td>54.9</td>
<td>49.7</td>
<td>43.4</td>
<td>36.5</td>
<td>30.9</td>
<td>27.0</td>
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<td>28.0</td>
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<td>40.2</td>
<td>42.6</td>
<td>45.9</td>
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<td>BSN</td>
<td>17.0</td>
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<td>21.8</td>
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<td>25.5</td>
<td>28.2</td>
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<td></td>
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<tr>
<td>Diploma</td>
<td>55.6</td>
<td>46.0</td>
<td>32.8</td>
<td>26.4</td>
<td>20.8</td>
<td>15.5</td>
<td>15.0</td>
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<tr>
<td>ADN</td>
<td>27.6</td>
<td>34.4</td>
<td>44.2</td>
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<td>21.7</td>
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<td>25.9</td>
<td>30.8</td>
<td>29.3</td>
<td>38.7</td>
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</table>

Source: NSSRN 1980-2008

Figure 1 compares initial nursing degrees reported by RNs in 1980 and 2008 by race/ethnicity. As noted earlier, Black RNs were most likely to report ADNs as their initial degree in 1980, compared to all other racial/ethnic groups. In 2008, well over half of Black and Hispanic RNs reported ADNs as their initial nursing degrees, compared to about 46% of White RNs and only 18% of Asian RNs. The relatively high percentage of Asian RNs reporting a BSN as their highest degree in 1980 and 2008 reflects, in part, the large number of foreign-trained RNs who emigrated to the U.S. from the Philippines, where the BSN is the entry-level RN degree. In 1980, nearly 75% of Asian RNs were foreign-trained while in 2008 almost 63% were foreign-trained.
Figure 1. Percent of RNs by Initial Nursing Degree and Race/Ethnicity, 1980 and 2008

Like many other health professions, Blacks and Hispanics remain underrepresented in registered nursing compared to their presence in the general population. There are limited sources of data to examine trends in the racial/ethnic diversity of the RN workforce in the U.S. Table 2 summarizes an analysis of data on the race/ethnicity of RNs nationally, drawn from the NSSRN.

Source: NSSRN, 1980 and 2008
<table>
<thead>
<tr>
<th>Year</th>
<th>White</th>
<th>Black</th>
<th>American Indian / Alaska Native</th>
<th>Asian</th>
<th>Two or More Races</th>
<th>Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977</td>
<td>93.7%</td>
<td>2.6%</td>
<td>0.2%</td>
<td>2.1%</td>
<td>N/A</td>
<td>1.4%</td>
</tr>
<tr>
<td>1980</td>
<td>92.7% (79.6%)</td>
<td>3.7% (11.5%)</td>
<td>0.3% (.63%)</td>
<td>2.0% (1.54%)</td>
<td>N/A</td>
<td>1.3% (6.5%)</td>
</tr>
<tr>
<td>1984</td>
<td>91.6%</td>
<td>4.0%</td>
<td>0.3%</td>
<td>2.6%</td>
<td>N/A</td>
<td>1.4%</td>
</tr>
<tr>
<td>1988</td>
<td>92.3%</td>
<td>3.6%</td>
<td>0.4%</td>
<td>2.3%</td>
<td>N/A</td>
<td>1.3%</td>
</tr>
<tr>
<td>1992</td>
<td>90.7%</td>
<td>4.1%</td>
<td>0.4%</td>
<td>3.4%</td>
<td>N/A</td>
<td>1.4%</td>
</tr>
<tr>
<td>1996</td>
<td>90.3%</td>
<td>4.2%</td>
<td>0.5%</td>
<td>3.4%</td>
<td>N/A</td>
<td>1.6%</td>
</tr>
<tr>
<td>2000</td>
<td>87.5% (69.1%)</td>
<td>5.0% (12.1%)</td>
<td>0.5% (.7%)</td>
<td>3.7% (3.6%)</td>
<td>1.2% (1.6%)</td>
<td>2.1% (12.5%)</td>
</tr>
<tr>
<td>2004</td>
<td>88.4%</td>
<td>4.6%</td>
<td>0.4%</td>
<td>3.3%</td>
<td>1.5%</td>
<td>1.7%</td>
</tr>
<tr>
<td>2008</td>
<td>83.2% (65.6%)</td>
<td>5.4% (12.3%)</td>
<td>0.3% (.8%)</td>
<td>5.8% (4.5%)</td>
<td>1.7% (1.5%)</td>
<td>3.6% (15.4%)</td>
</tr>
</tbody>
</table>

Sources: NSSRN 1977-2008, Censusscope3, U.S. Census Bureau4

Lack of diversity in the registered nursing profession is particularly concerning given well-documented racial/ethnic disparities in health processes and outcomes. The relationship between health disparities and lack of cultural competence in health care systems has been cited by many in the literature (Anderson et al., 2003; Beach et al., 2005; Brach et al., 2002; Chin, 2000; Betancourt et al., 2005; Geiger, 2006). Culturally competent health care is characterized by a consistent set of attitudes, behaviors, and policies that can respond to the social, linguistic, or cultural needs of patients (Betancourt, 2002). Health workforce diversity has been frequently identified as an important strategy to improve cultural competence in the health workforce and ultimately, to reduce health disparities (American College of Physicians, 2004; 3 http://www.censusscope.org/us/chart_race.html; 4 https://www.census.gov/compendia/statab/2011/tables/11s0006.pdf
Betancourt, 2006; Betancourt et al., 2003; Brach, 2000; Brach, 2002; Cohen et al., 2002; Reede, 2003; Smedly et al., 2004; Sullivan Commission, 2004; Sullivan et al., 2010). A systematic assessment of research on the impact of health professions’ diversity on health outcomes for underserved populations found that underrepresented minority health professionals were more likely to care for minority populations, and that patient-practitioner language concordance increased the likelihood of patient compliance and positive health outcomes (Saha, 2006). However, the vast majority of this research has focused on impacts of diversity in medicine and not on registered nursing (Cooper-Patrick et al., 1999; Johnson et al., 2004; LaVeist et al., 2002; Saha et al., 1999; Saha et al., 2000; Schnittiker et al., 2006). While registered nursing has long recognized and promoted culturally competent nursing care, there is concern that such efforts are superficial at best and fail to emphasize root causes of health disparities, which include bias and social inequities (Drevdahl, 2008; Giddings, 2005; Eliason, 1998).

The Bureau of Labor Statistics estimates that over 1.2 million new RNs will be needed nationally between 2010 and 2020 to fill new and existing jobs (Martiniano & McGinnis, 2012). This points to a future need to increase the recruitment of previously underrepresented groups into registered nursing, particularly since White females (the traditional recruitment pool for RNs) comprise an increasingly smaller percentage of the country’s population: from 41.0% in 1980 to 35.1% in 2000, 32.5% in 2010 and a projected 30.4% by 2020 (U.S. Census, 2001; U.S. Census, 2006; U.S. Census, 2009; U.S. Census, 2011). In the past, particularly in times of nursing shortage, recruitment of foreign-trained RNs has served to both increase RN supply and improve its diversity.
(Lowell, 2004). However, such a strategy could serve to discourage U.S.-born minorities from entering the nursing profession.

**Race/Ethnicity and Income Inequality**

Certain racial/ethnic groups in the U.S. population earn lower incomes on average and are more likely to live in poverty than White Americans. Lower labor force participation among disadvantaged minorities is clearly a factor, but even when comparing those working full time and year round, the differences are striking. Among men, Whites age 16 and older who worked full time and year round in 2006 averaged $60,443 in wages or salary, while their Black counterparts averaged $40,722 and their Hispanic peers averaged $34,681. Among women, Whites who worked full time and year round in 2006 averaged $42,535, compared to $35,091 for Black women and $29,788 for Hispanic women (U.S. Census, 2007). Asian men and women earned more on average than their counterparts of all races ($62,704 and $47,838, respectively), but this varied widely by ethnicity. For example, among men with earnings, Japanese men earned an average of $74,949 and Asian Indian men earned an average of $84,295, but Filipino men earned an average of $51,885, Vietnamese men earned an average of $46,598, and Hmong men earned an average of $31,591 (U.S. Census, 2007).

In the sociological and economic literature, there are three primary explanations for racial/ethnic wage disparities among individuals in the labor force. The first focuses on the segregation of different racial/ethnic groups into different occupational categories with varying levels of both material (e.g., income, benefits) and intangible (e.g., prestige,
power) rewards (Hout, 1984; Tomoskovic-Devey and Skaggs, 1999). Such occupational segregation clearly exists and in some cases is very dramatic. The underrepresentation of certain minority groups in the higher paying health professions is well documented (The Sullivan Commission, 2004). Occupational segregation, however, fails to explain the presence of salary disparities within a single occupation, such as registered nursing.

The second primary explanation for salary disparities focuses on racial/ethnic differences in human capital that contribute to higher earnings (Browne et al., 2001; O’Neill, 1990; Carnoy, 1996; Becker, 1985). The concept of human capital was first introduced in the early 1960s by Theodore Schultz, an economist, who described the relationship between education and productivity.

Although it is obvious that people acquire useful skills and knowledge, it is not obvious that these skills and knowledge are a form of capital, that this capital is in substantial part a product of deliberate investment, that it has grown in Western societies at a much faster rate than conventional (nonhuman) capital… Direct expenditure on education, health, and internal migration to take advantage of better job opportunities are clear examples [of human capital]… such investment in human capital accounts for the most impressive rise in the real earnings per worker. (Schultz, 1961, page 1)

In essence, human capital is those characteristics of individuals that are valued in the labor market, such as educational attainment, experience, skills, and competencies. Human capital differences may contribute to occupational segregation and may also affect within-occupation outcomes, including income.

Once members of disadvantaged minority groups have successfully entered an occupation dominated by Whites, they may still lack equal access to resources, such as
the ability to advance their education to the same level as Whites in that occupation, or they may be less prepared by their entry-level educational program (either in terms of actual competencies or in terms of the social networks provided by “brand name” institutions), or they may be disadvantaged by limited English language ability or the perception that their English proficiency is limited. Finally, because of historical discrimination, minorities in the better paying fields are more likely to be younger on average than non-minorities, and will earn less on average simply because they have fewer years of experience.

In addition, sometimes members of minority groups are disadvantaged because of structural disparities, i.e., differences in the structure of the systems within which they function (Massey & Denton, 1993; Browne et al., 2001). One research paper, for example, hypothesized that Blacks in occupations that require building a clientele experienced greater salary disparities relative to Whites simply because their clients were more likely to be Black and therefore tended to have lower incomes on average, which constrained their earnings potential relative to Whites who had as many, but wealthier, clients (Grodsky & Pager, 2001). While RNs typically do not build a clientele, Black RNs – for various reasons (i.e., proximity, cultural comfort) – may seek employment in hospitals in the neighborhoods in which they live, which are likely to be public hospitals that serve lower income populations, and these factors could affect their earnings.

Finally, the third explanation for the presence of racial/ethnic wage disparities is discrimination. A national study of job discrimination in 1999 found that hospitals were
one of 10 industries with the highest rates of intentional discrimination against minorities and women (Blumorsen, 2000). Concern about salary inequity and racial discrimination in health care organizations is sufficient enough that strategies have been proposed to measure racial/ethnic pay disparities in the workforce (Yamatani, 2006). However, there is a limited amount of evidence in nursing research to support the presence of racial/ethnic pay disparities in nursing. Two studies have examined racial/ethnic bias in RN promotions. Hagey et al. (2001) conducted qualitative case studies of nine minority RNs who had immigrated to Canada and filed discrimination grievances against their employers. The researchers obtained detailed information on the experiences that these RNs believed to be discriminatory and that adversely affected their opportunities for promotion. They identified recurring themes drawn from these descriptions and, based on these themes, recommended potential strategies to address concerns about racial discrimination in the workplace (Hagey et al., 2001). A sample survey of California RNs conducted in 2004 found that minority RNs reported barriers to promotional opportunities more often than their White counterparts. Over 40% of those minority RNs, many of whom worked in hospitals, attributed their race/ethnicity as the reason for being denied a promotion (Seago et al., 2005).

**Race/Ethnicity Wage Disparities in Registered Nursing**

Hospitals play a vital role in the nursing labor market. Over 62% of all RNs were employed in hospitals in 2008 (U.S. Department of Health and Human Services, 2010). Furthermore, RNs were the single largest occupation in hospitals, accounting for almost 30% of total employment in general medical and surgical hospitals in 2010 (U.S.
Department of Labor, 2012). Average annual earnings for RNs working full time in hospitals were higher than the average earnings across all types of RN employment settings in 2008 ($69,002 compared with $66,853 nationwide) (U.S. Department of Health and Human Services, 2010).

A survey of hospital RNs in New York conducted by the Center for Health Workforce Studies in 2006-07 found within-occupation wage gaps between minority RNs who worked in New York City hospitals and their White counterparts. Specifically, an analysis of data on a subset of RNs working in hospitals in the New York City Primary Metropolitan Statistical Area (PMSA)\(^5\) by McGinnis et al. in 2008, found that Black, Hispanic, and Asian RNs earned less on average than White RNs, even after controlling for the human capital and job characteristics (e.g., educational attainment, professional status, years of nursing experience, English proficiency, union representation, and geographic location) that are usually associated with higher earnings (McGinnis et al., 2008).

While human capital and job characteristics were significantly associated with RN earnings, the analysis found that race/ethnicity exerted an independent effect on earnings. Net of all other variables, Black RNs earned $3,041 less than White RNs, Hispanic RNs earned $2,217 less, and Asian RNs earned $2,596 less.

\(^5\) Includes the counties of Bronx, Kings, New York, Queens, Richmond, Nassau, Suffolk, Putnam, Rockland, and Westchester.
Table 3. OLS Regression Coefficients Predicting Estimated Earnings at Primary Nursing Job for Full-time Hospital RNs in New York City PMSA

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \beta )</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>66684.60***</td>
<td>1285.52</td>
</tr>
<tr>
<td>White</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Black</td>
<td>-3041.06***</td>
<td>874.27</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-2216.64*</td>
<td>1058.65</td>
</tr>
<tr>
<td>Asian</td>
<td>-2595.55**</td>
<td>900.46</td>
</tr>
<tr>
<td><strong>Human Capital Variables</strong></td>
<td></td>
<td></td>
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<tr>
<td>Years Working as RN</td>
<td>462.88***</td>
<td>38.99</td>
</tr>
<tr>
<td>Years with Current Employer</td>
<td>113.67***</td>
<td>42.89</td>
</tr>
<tr>
<td>Highest nursing degree &lt; BSN</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Highest nursing degree &gt;= BSN</td>
<td>2458.32***</td>
<td>648.50</td>
</tr>
<tr>
<td>Primary language is English</td>
<td>1735.20*</td>
<td>886.59</td>
</tr>
<tr>
<td><strong>Job Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff RN</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Other title</td>
<td>10233.87</td>
<td>796.94</td>
</tr>
<tr>
<td><strong>Structural Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public hospital</td>
<td>-9042.59***</td>
<td>1170.00</td>
</tr>
<tr>
<td>Academic health center</td>
<td>2013.07*</td>
<td>890.02</td>
</tr>
<tr>
<td>In Manhattan borough</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Outside five boroughs</td>
<td>-4415.04***</td>
<td>862.29</td>
</tr>
<tr>
<td>In New York City, not Manhattan</td>
<td>2220.95**</td>
<td>767.08</td>
</tr>
<tr>
<td>Unionized hospital</td>
<td>-1500.66*</td>
<td>662.10</td>
</tr>
</tbody>
</table>

Level of significance: * .05 or less  
** .01 or less  
*** .001 or less

While an Ordinary Least Squares regression model controlled for differences in human capital and job characteristics between the four groups, it did not account for the possibility that these characteristics had different economic value in the labor market for different racial/ethnic groups. Four different regression equations were estimated to predict earnings among the four racial/ethnic groups (Table 4).
Table 4. OLS Regression Coefficients Predicting Estimated Earnings at Primary Nursing Job for Full-time Hospital RNs in New York City PMSA, by Race/Ethnicity

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Std. Error</th>
<th>Black</th>
<th>Std. Error</th>
<th>Hispanic</th>
<th>Std. Error</th>
<th>Asian</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Constant)</strong></td>
<td>62687.53****</td>
<td>2285.38</td>
<td>6241.15***</td>
<td>2713.27</td>
<td>65543.15***</td>
<td>2705.18</td>
<td>64466.32***</td>
<td>2743.64</td>
</tr>
<tr>
<td><strong>Human Capital Variables</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years Working as RN</td>
<td>539.68***</td>
<td>48.62</td>
<td>468.27***</td>
<td>84.42</td>
<td>353.18**</td>
<td>120.25</td>
<td>230.44*</td>
<td>112.86</td>
</tr>
<tr>
<td>Years with Current Employer</td>
<td>66.87</td>
<td>53.60</td>
<td>31.24</td>
<td>93.25</td>
<td>248.93*</td>
<td>121.68</td>
<td>307.69*</td>
<td>128.06</td>
</tr>
<tr>
<td>Highest nursing degree &lt; BSN</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Highest nursing degree &gt;= BSN</td>
<td>1863.49*</td>
<td>853.02</td>
<td>3760.47**</td>
<td>1377.39</td>
<td>2154.60</td>
<td>1680.12</td>
<td>3628.82*</td>
<td>1770.78</td>
</tr>
<tr>
<td>Primary language is English</td>
<td>5106.02*</td>
<td>2014.95</td>
<td>827.03</td>
<td>1965.34</td>
<td>1115.74</td>
<td>1762.15</td>
<td>401.82***</td>
<td>1561.95</td>
</tr>
<tr>
<td><strong>Job Characteristics</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff RN</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other title</td>
<td>10617.51***</td>
<td>995.90</td>
<td>7191.23***</td>
<td>1667.37</td>
<td>9668.20***</td>
<td>2296.06</td>
<td>11530.71***</td>
<td>2495.82</td>
</tr>
<tr>
<td><strong>Structural Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public hospital</td>
<td>-8123.49***</td>
<td>2298.69</td>
<td>-9620.41***</td>
<td>1865.36</td>
<td>-3645.97</td>
<td>3016.91</td>
<td>-8374.91***</td>
<td>2479.27</td>
</tr>
<tr>
<td>Academic health center</td>
<td>752.80</td>
<td>1169.67</td>
<td>2612.95</td>
<td>1902.65</td>
<td>2201.28</td>
<td>2204.04</td>
<td>5745.24*</td>
<td>2506.65</td>
</tr>
<tr>
<td>In Manhattan borough</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Outside five boroughs of NYC</td>
<td>-4800.43***</td>
<td>1088.72</td>
<td>-4173.97*</td>
<td>2100.36</td>
<td>-5789.97*</td>
<td>2535.55</td>
<td>-2138.05</td>
<td>2409.64</td>
</tr>
<tr>
<td>In NYC, not Manhattan</td>
<td>3359.65**</td>
<td>1075.72</td>
<td>1137.99</td>
<td>1590.75</td>
<td>-2012.58</td>
<td>2125.98</td>
<td>2291.43</td>
<td>1819.82</td>
</tr>
<tr>
<td>Unionized hospital</td>
<td>-921.14</td>
<td>839.62</td>
<td>-2448.84</td>
<td>1608.25</td>
<td>-702.92</td>
<td>1809.99</td>
<td>-1347.58</td>
<td>1949.01</td>
</tr>
<tr>
<td><strong>Adjusted R-square</strong></td>
<td>0.325</td>
<td>0.311</td>
<td>0.270</td>
<td>0.125</td>
<td>0.270</td>
<td>0.125</td>
<td>0.270</td>
<td>0.125</td>
</tr>
</tbody>
</table>

Level of significance: * .05 or less  
** .01 or less  
*** .001 or less

Further analyses of these data were conducted (McGinnis et al., 2009) using a commonly recognized statistical approach to estimating labor market discrimination, the regression decomposition. According to Neuman et al., 2003, p. 2, “separately estimated (log) wage equations for two groups of workers [are used] to decompose the difference in their mean wages into a discrimination (unexplained) portion and a human capital (explained) portion.” A regression decomposition was run to disaggregate the total economic value of human capital and job characteristics into constituent direct and indirect monetary worth.
Specifically, this method was used to show differences in both the possession of specific human capital (endogenous) and job characteristics among the four racial/ethnic groups as well as the difference in the monetary value of the same characteristic (exogenous) for Black RNs, Hispanic RNs, and Asian RNs as compared to White RNs. The regression decomposition below (Table 5) shows these effects for Black RNs, Hispanic RNs, and Asian RNs compared to White RNs.

The $\Delta x$ column in Table 5 below shows the effects of differences in the possession of specific human capital and job characteristics on earnings between the two groups. The $\Delta \beta$ column shows the effects of differential value for the same characteristic on earnings between the two groups. When the value of $\Delta x$ is greater than the value of $\Delta \beta$, the earnings differential is primarily affected by differences in the possession of a specific characteristic. When the value of $\Delta \beta$ is greater than the value of $\Delta x$, the earnings differential is primarily affected by differences in the value of the same characteristic between the two groups.
Table 5. Regression Decomposition of the Differential in Full-time Earnings between White RNs and Black, Hispanic, and Asian Full-time Hospital RNs in the New York City PMSA

<table>
<thead>
<tr>
<th></th>
<th>Black-White</th>
<th>Hispanic-White</th>
<th>Asian-White</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>∆β</td>
<td>Δx</td>
<td>T</td>
</tr>
<tr>
<td>(Constant)</td>
<td>3553.62</td>
<td>3553.62</td>
<td>2855.62</td>
</tr>
<tr>
<td>Years Working as RN</td>
<td>-1129.53</td>
<td>-1084.05</td>
<td>-2213.58</td>
</tr>
<tr>
<td>Years with Current Employer</td>
<td>-403.49</td>
<td>-20.16</td>
<td>-423.65</td>
</tr>
<tr>
<td>Highest nursing degree &gt;= BSN</td>
<td>1272.87</td>
<td>-28.12</td>
<td>1244.75</td>
</tr>
<tr>
<td>Primary language is English</td>
<td>-3962.34</td>
<td>-231.39</td>
<td>-4193.73</td>
</tr>
<tr>
<td>Other title (not staff RN)</td>
<td>-904.46</td>
<td>-247.41</td>
<td>-1331.87</td>
</tr>
<tr>
<td>Academic health center</td>
<td>327.39</td>
<td>-50.49</td>
<td>276.90</td>
</tr>
<tr>
<td>Outside five boroughs of NYC</td>
<td>124.98</td>
<td>435.26</td>
<td>560.24</td>
</tr>
<tr>
<td>In NYC, not Manhattan</td>
<td>-805.35</td>
<td>249.62</td>
<td>-555.73</td>
</tr>
<tr>
<td>Unionized hospital</td>
<td>-970.09</td>
<td>-353.85</td>
<td>-1323.94</td>
</tr>
<tr>
<td><strong>Total Contribution</strong></td>
<td><strong>-3067.05</strong></td>
<td><strong>-2983.33</strong></td>
<td><strong>-6050.38</strong></td>
</tr>
</tbody>
</table>

Table 5 depicts the differences in earnings for each racial/ethnic group. The earnings differential between Black RNs and White RNs was about equally due to differences in the possession of human capital and job characteristics and differences in the value of the same characteristic between the two groups. In all, Black RNs earned about $6,050 less than White RNs: $2,983 less because of differences in the possession of human capital and job characteristics and $3,067 less because some of these characteristics (e.g., nursing experience, English proficiency, having a job title above that of staff RN) did not translate into the same earnings advantages as they did for Whites. A few characteristics,
however, were actually worth more to the salaries of Black RNs than White RNs. Having a BSN and working in an academic health center were associated with higher earnings for Black RNs than for White RNs.

The earnings differential between Hispanic RNs and White RNs was 67% due to differences in the possession of human capital and job characteristics and 33% due to differences in the value of the same characteristics. While Hispanic RNs earnings differential was the largest ($7,378), $4,939 was due to differences in characteristics, especially their fewer years of nursing experience. In contrast, $2,439 was due to the fact that the same characteristic did not produce the same earnings advantages as it did for White RNs. This was particularly true for years of experience and English proficiency, which were both worth less to the salaries of Hispanic RNs than White RNs.

Overall, Asian RNs earned $5,992 less than White RNs, and 68% ($4,063) was due to differences in characteristics (most notably their tendency to speak English as a second language and to remain in staff nurse positions throughout the course of their careers). One-third of the difference (32%) was due to differences in the value of the same characteristic between the two groups, which cost them an estimated $1,929 in earnings. In particular, years of nursing experience produced less of a boost in salary for Asian RNs, although time working for the current employer was worth more for Asian RNs than for White RNs. English proficiency was also worth less to the salaries of Asian RNs than to White RNs.
McGinnis et al. (2009) found that 1) salary disparities existed between White RNs and their Black, Hispanic, and Asian counterparts working in hospitals in the New York City MSA; 2) these disparities were not explained by controlling for the relevant human capital and job characteristics of these RNs; and 3) the characteristics of hospital RNs that were usually associated with higher earnings did not produce the same levels of reward in terms of earnings for RNs from different racial/ethnic groups. The earnings differential between Black RNs and White RNs was about equally due to differences in the possession of human capital (endogenous) and job characteristics and monetary differences in the value of the same characteristic (exogenous), but the earnings differentials between Hispanic RNs and White RNs and between Asian RNs and White RNs were about two-thirds due to differences in the possession of human capital and job characteristics and one-third due to differences in the monetary value of the same characteristic (McGinnis et al., 2009).

This research was considered exploratory since it was subject to a number of important limitations. First, not all RNs who worked in participating hospitals responded to the survey and there was potential for response bias. In addition, the sample used in this analysis was somewhat small and limited in terms of geography since it only included hospital RNs working in the New York City metropolitan area. Another important limitation was that the survey collected information on the hours per week and salary ranges for full-time RNs, but information on overtime hours and earnings was not collected. Consequently, no inferences can be drawn about how RNs from different racial/ethnic groups used overtime hours to supplement their income.
A recently published paper (McGregory, 2011) analyzing wage differences between Black RNs and White RNs in the U.S. found that the hourly wage of Black RNs was less, on average, than the hourly wage of White RNs. Specifically, non-unionized Black RNs earned 7.58% less than non-unionized White RNs, while unionized Black RNs saw a much smaller wage gap (.85%) compared to unionized White RNs. Unfortunately, there appears to be a number of methodological flaws associated with the analysis in this research study. First, two key pieces of information were not available for this analysis and not controlled for in the regression – job title and years of nursing experience. Both variables are known to have impact on the wages of RNs (Bothello, 1998; Schumaker, 1997; Spetz, 2002; Kalist, 2002). A bigger problem is the failure of this research study to account for geographic variation, both in race/ethnicity and earnings. The data source for this analysis, the Current Population Survey (CPS) uses primary sampling units (PSUs) that are very heterogeneous, i.e., they include both rural and urban counties. This means that the sample included both rural RNs (few minorities, lower pay) and urban RNs (many minorities, higher pay). This may result in what is known as an errors-in-variables bias (Geronimus et al., 1996). This bias occurs due to unmeasured variation within a given geographic area that will attenuate the strength of the observed relationship between the independent and dependent variable (Fortney et al., 2000) as a direct result of critical variation within the larger geographic unit. Whenever a larger geographical area, such as the PSUs of the CPS, contains a surplus of certain variables (urban RNs with many minorities and higher pay) as well as a shortage of others (rural RNs with fewer minorities and lower pay), the effect at the PSU level will “average out,” masking
any actual patterns. The random error produced from the errors-in-variables will bias the regression parameter estimates towards zero (Geronimus et al., 1996), thus making it more likely for researchers to commit Type II errors, or incorrectly accepting the null hypothesis that little or no relationship exists (Fortney et al., 2000). It is therefore not surprising that the analysis found little difference between Black RNs and White RN wages. Further, there are no limitations identified in the paper, so it is unclear whether the researcher fully recognized these issues.

More research is needed to confirm the presence of racial/ethnic pay disparities in registered nursing, to understand contributing factors, and to inform the development of strategies aimed at achieving pay equity in registered nursing. The proposed research study, an analysis of the salaries of hospital RNs working in major urban areas across the country, builds on prior work and will determine whether the racial/ethnic pay disparities for hospital RNs found in the New York City exploratory study generalize to the country as a whole. To the extent possible, data from the 2008 NSSRN will be used to replicate the New York City exploratory study, but on a national scale. Further, the NSSRN collects data on overtime income and hours, which will be included in the analysis. These data were not available in the New York City analysis, but believed to be important variables to consider. Like the New York City study, regression decomposition will be used to detect the presence of racial/ethnic pay disparities among hospital RNs in major metropolitan areas of the U.S. However, unlike the New York City study, a Heckman correction will be included as part of the analysis to correct for selection bias (Sales, et
al., 2004: Bushway, 2007), in relation to the likelihood of Asian RNs working more overtime hours than all other RNs, which could inflate their reported earnings.

**Research Hypothesis**

Black, Hispanic, and Asian (i.e., minority) RNs who work in hospitals in major metropolitan areas of the U.S. are predicted to earn less than their White RN counterparts, even when these minority RNs possess the same human capital and job characteristics that are typically associated with higher earnings. More specifically, it is hypothesized that:

- pay disparities between White RNs and Black RNs are equally due to differences in the possession of human capital and job characteristics and differences in the value of the same characteristics;
- 66% of pay disparities between White RNs and Hispanic RNs is due to differences in the possession of human capital and job characteristics and 33% is due to differences in the value of the same characteristics; and
- 66% of pay disparities between White RNs and Asian RNs is due to differences in the possession of human capital and job characteristics and 33% is due to differences in the value of the same characteristics.

Human capital characteristics that are typically associated with higher earnings for RNs include professional status, years of nursing experience, educational attainment, English proficiency, union representation, and geographic location (Bothello, 1998; Schumaker, 1997; Spetz, 2002; Kalist, 2002).
The rationale for this hypothesis is in large part based on the findings of a 2006-07 survey of hospital RNs in New York (McGinnis et al., 2009) which found within-occupation wage gaps between minority RNs who worked in New York City hospitals and their White RN counterparts.

**Approach/Methods**

**Data Source**

The data for this analysis will be drawn from the 2008 National Sample Survey of Registered Nurses (NSSRN). The NSSRN is one of the best national sources of data that can be used for this study. It collects data on hours worked, earnings, setting, title, and many of the human capital characteristics associated with earnings.

A primary purpose of the NSSRN is to provide state and national estimates of the RN workforce and, as a result, RNs in smaller, less populated states are oversampled, while RNs in larger, more populated states are undersampled. Concerns have been raised that this sampling approach may, in fact, underestimate minority participation in the RN workforce since minority RNs are more likely to be found in the metropolitan areas of more populous states, which are undersampled (Martiniano et al., 2010).

The sampling frame for the NSSRN is all licensed RNs in the U.S., and state-level RN licensure lists are used to draw the sample for the survey. Prior to 2008, the NSSRN sample was drawn using nested cluster design based on last name, which is also known as
alpha-segment design. This approach to drawing a sample may adversely impact estimates of RN race/ethnicity since people with the same race/ethnicity tend to be in the same alphabetic clusters of last names (U.S. Department of Health and Human Services, 2010).

For the 2008 NSSRN, a different sampling design was used. While still using state-level RN licensure lists, independent systematic random samples were drawn from state-based strata. The sample frame for each stratum was sorted on variables available in a given state’s frame (e.g., age, zip code) that were of greatest analytic interest. The sorting was designed to achieve, to the extent possible, proportionate sample distribution across key variables of interest in order to improve the precision of the sample estimates (U.S. Department of Health and Human Services, 2010).

Further, to correct for sampling bias, the NSSRN sample was weighted in order to improve the accuracy of state and national estimates of the RN workforce. Sample weights included adjustments for non-response, multiple chances for selection, and consistency with the total number of RNs licensed in a state (U.S. Department of Health and Human Services, 2010).

As part of efforts to validate results, NSSRN estimates for RN race/ethnicity were compared to estimates of RN race/ethnicity drawn from the American Community Survey (ACS), a large sample survey of the U.S. population conducted by the U.S. Census Bureau.
Compared to the NSSRN, the ACS estimates a much higher proportion of Black RNs and a slightly higher proportion of Asian RNs and Hispanic RNs in the country’s nursing workforce. An alternative explanation for the difference is the potential for higher NSSRN non-response from minority RNs, particularly Black RNs. The second explanation for the difference is the potential for the misclassification of RNs by the ACS. A major difference between NSSRN and ACS is that the NSSRN draws its sample from licensed RNs, while in the ACS, occupation is self-reported. Thus, ACS respondents who are not RNs could misclassify themselves as RNs.

In an effort to further study this issue, the percent of RNs in New York who reported holding bachelor’s degrees, by race/ethnicity, was compared using the 2008 NSSRN, the 2008 ACS, and a third survey, the New York RN Re-registration Survey. Since December 2007, the Center for Health Workforce Studies has conducted the New York RN Re-registration Survey at the time of license renewal for New York RNs. As of December 31, 2011, approximately 115,000 unique records (representing 42% of all licensed RNs in New York) were available for analysis. While there was some variation by race/ethnicity across all three surveys, the most substantial difference is the percent of

<table>
<thead>
<tr>
<th></th>
<th>2008 NSSRN</th>
<th>2008 ACS</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>82.3%</td>
<td>76.6%</td>
</tr>
<tr>
<td>Black</td>
<td>5.6%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Asian</td>
<td>5.8%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>3.9%</td>
<td>4.4%</td>
</tr>
</tbody>
</table>

Sources: NSSRN, ACS
Black RNs holding a bachelor’s degree reported by ACS as compared to the NSSRN and the New York RN Re-registration Survey.

**Table 7. Percent of Licensed RNs in New York Reporting a Bachelor’s Degree, by NSSRN, ACS, and New York RN Re-registration Survey, 2008**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>63.4%</td>
<td>55.0%</td>
<td>59.5%</td>
</tr>
<tr>
<td>Black</td>
<td>11.6%</td>
<td>20.6%</td>
<td>12.7%</td>
</tr>
<tr>
<td>Asian</td>
<td>21.0%</td>
<td>18.1%</td>
<td>20.4%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>3.1%</td>
<td>5.0%</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

Sources: NSSRN, ACS, and NY RN Re-registration Survey

Given the consistency between the 2008 NSSRN and the New York RN Re-registration Survey, the current sampling method used by the NSSRN appears to have reduced the likelihood of undercounting minority RNs and that the sample drawn for the purposes of this study is adequate in its representation of minority RNs.

**Sample Selection for the Study**

A sample of RNs drawn from the 2008 NSSRN was used to replicate the New York-specific hospital RN salary analysis at a national level. For the 2008 survey, over 55,000 RNs were surveyed and more than 34,200 RNs responded to the survey for a response rate of about 62%. This was determined to be sufficient to support stable national-, regional-, and state-level estimates of the RN population and its characteristics (U.S. Department of Health and Human Services, 2010). Of the 34,200 respondents, only those actively employed in nursing (n=28,554) were eligible for selection into the current study.
In planning the sample to be drawn from the NSSRN for this study, it was important to consider the sample used in the New York City study. A key issue is geography. The New York City study analyzed the salaries of hospital RNs who worked in the 10 most populous or central counties of the New York City MSA, which include Manhattan, Brooklyn, Bronx, Kings, Queens, Richmond, Nassau, Suffolk, Putnam, Rockland, and Westchester. By definition, an MSA is a county or group of counties with a relatively densely populated urban area as its core, plus adjacent communities with a high degree of economic and social integration with the core (OMB, 2009). The central counties within the MSA comprise the largest urban area and the most densely populated communities within the MSA. Outlying counties are not as densely populated and represent the adjacent communities within the MSA.

There are limited data on work locations of minorities in the U.S. civilian labor force, particularly RNs. Smedly et al. (2002) noted geographic variation in the distribution of active minority RNs across the U.S., with Black RNs more likely to be in the southern and mid-Atlantic states, Hispanic RNs more likely to be in the southern and western states, and Asian RNs more likely to be in the Pacific and mid-Atlantic states. Further, RNs on the whole are more likely to work in hospitals compared to all other settings.

An analysis of 2008 NSSRN data by the race/ethnicity of respondents found that minority RNs were most likely to work in the central counties of the 64 MSAs with populations of 1 million or greater. The following summarizes key points from this analysis.
The majority of RNs, particularly minority RNs, worked in MSAs.

Table 8. Work Location of Active RNs in the U.S., By Race/Ethnicity, 2008

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Worked in MSA</th>
<th>Worked in non-MSA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>White</strong></td>
<td>21,570</td>
<td>2,667</td>
<td>24,237</td>
</tr>
<tr>
<td>% Total White</td>
<td>89%</td>
<td>11%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Black</strong></td>
<td>1,391</td>
<td>119</td>
<td>1,510</td>
</tr>
<tr>
<td>% Total Black</td>
<td>92.1%</td>
<td>7.9%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Hispanic</strong></td>
<td>756</td>
<td>74</td>
<td>830</td>
</tr>
<tr>
<td>% Total Hispanic</td>
<td>91.1%</td>
<td>8.9%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Asian</strong></td>
<td>1,236</td>
<td>117</td>
<td>1,353</td>
</tr>
<tr>
<td>% Total Asian</td>
<td>91.4%</td>
<td>8.6%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>540</td>
<td>84</td>
<td>624</td>
</tr>
<tr>
<td>% Total Other</td>
<td>86.5%</td>
<td>13.5%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>25,493</td>
<td>3,061</td>
<td>28,554</td>
</tr>
<tr>
<td>% Total</td>
<td>89.3%</td>
<td>10.7%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: 2008 NSSRN

Of all RNs who worked in MSAs, minority RNs were most likely to work in the most densely populated MSAs.

Table 9. Active RNs in the U.S. Who Worked in MSAs, by Size of MSA and Race/Ethnicity, 2008

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Worked in MSA &gt;1 Million</th>
<th>Worked in MSA &lt;1 Million</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>White</strong></td>
<td>9,471</td>
<td>12,099</td>
<td>21,570</td>
</tr>
<tr>
<td>% Total White</td>
<td>43.9%</td>
<td>56.1%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Black</strong></td>
<td>997</td>
<td>394</td>
<td>1,391</td>
</tr>
<tr>
<td>% Total Black</td>
<td>71.7%</td>
<td>28.3%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Hispanic</strong></td>
<td>430</td>
<td>326</td>
<td>756</td>
</tr>
<tr>
<td>% Total Hispanic</td>
<td>56.9%</td>
<td>43.1%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Asian</strong></td>
<td>893</td>
<td>343</td>
<td>1,236</td>
</tr>
<tr>
<td>% Total Asian</td>
<td>72.2%</td>
<td>27.8%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>235</td>
<td>305</td>
<td>540</td>
</tr>
<tr>
<td>% Total Other</td>
<td>43.6%</td>
<td>56.4%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>12,028</td>
<td>13,467</td>
<td>25,493</td>
</tr>
</tbody>
</table>

Source: 2008 NSSRN

6 Includes the following: 1) American Indian or Alaska Native and 2) two or more races.
Minority RNs were most likely to work in the central counties of MSAs.

Table 10. Work Location of Active RNs in MSAs, by County Type and Race/Ethnicity, 2008

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Worked in Central County of MSA</th>
<th>Worked in Outlying County of MSA</th>
<th>Worked in Mixed County</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>White</strong></td>
<td>7,972</td>
<td>12,591</td>
<td>949</td>
<td>21,512</td>
</tr>
<tr>
<td>% Total White</td>
<td>37.1%</td>
<td>58.5%</td>
<td>4.4%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Black</strong></td>
<td>952</td>
<td>415</td>
<td>24</td>
<td>1,391</td>
</tr>
<tr>
<td>% Total Black</td>
<td>68.4%</td>
<td>29.8%</td>
<td>1.7%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Hispanic</strong></td>
<td>394</td>
<td>341</td>
<td>21</td>
<td>756</td>
</tr>
<tr>
<td>% Total Hispanic</td>
<td>52.1%</td>
<td>45.1%</td>
<td>2.8%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Asian</strong></td>
<td>865</td>
<td>352</td>
<td>18</td>
<td>1,235</td>
</tr>
<tr>
<td>% Total Asian</td>
<td>70%</td>
<td>28.5%</td>
<td>1.5</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>216</td>
<td>313</td>
<td>9</td>
<td>538</td>
</tr>
<tr>
<td>% Total Other</td>
<td>40.1%</td>
<td>58.1%</td>
<td>1.7%</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10,399</td>
<td>14,012</td>
<td>1,021</td>
<td>25,432</td>
</tr>
<tr>
<td>% Total</td>
<td>40.9%</td>
<td>55.1%</td>
<td>4%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: 2008 NSSRN
The sample drawn from the 2008 NSSRN for this study included all RNs who worked in the U.S. and worked in a central county of an MSA with a population of 1 million or greater. Additional selection criteria for this study, which are consistent with the New York City hospital RN study, included the following:

- Race/ethnicity was White or Black or Hispanic or Asian;
- Worked in a hospital;
- Worked full time\(^7\); and
- Reports one of the following titles:
  - Staff nurse
  - Nurse manager\(^8\)
  - Advanced practice registered nurse (APRN)\(^9\)
  - Nurse educator\(^10\)

A total of 4,248 RNs drawn from the NSSRN met the selection criteria described above and were determined to be eligible to be included in the study. However a total of 220 cases were eliminated from inclusion in the study as follows:

- 4 cases were eliminated because information on highest nursing degree was missing;

\(^7\) Full-time is defined as working no less than 24 hours per week and no more than 60 hours per week.
\(^8\) Includes the following titles: charge nurse or team leader, first-line management (head nurse, floor supervisor), and middle management/administration (assistant director, department head).
\(^9\) Includes the following titles: certified registered nurse anesthetist, clinical nurse specialist, certified nurse midwife, and nurse practitioner.
\(^10\) Includes the following titles: staff educator or instructor in a clinical setting, staff development director, instructor/lecturer, and researcher.
• 206 cases were eliminated because full-time weekly work hours reported were improbable, i.e., either less than 24 hours per week or greater than 60 hours per week; and

• 10 cases were eliminated because calculated hourly wage\textsuperscript{11} fell 2 standard deviations below the mean (mean=34.44, SD= 10.31).\textsuperscript{12}

A comparison of included and excluded cases revealed some similarities and some differences between the two groups that are described below.

• When compared to included cases, excluded cases were more likely to be Asian RNs (21% compared to 12%) and Black RNs (15% compared to 11%) and less likely to be White RNs (60% compared to 73%). There was almost no difference between the groups in the percent of Hispanic RNs (4% compared to 5%).

• When compared to included cases, excluded cases had a higher percent of RNs who reported completing initial RN training in the Philippines (14.1% compared to 5.8%) and a lower percent reported completing initial RN training in the U.S. (77.7% compared to 88.8%).

• There was no difference between the groups in mean years worked as an RN (15.4 years for excluded cases and 15.3 years for included cases).

• There was no difference between the groups in the percent of RNs reporting the title “staff nurse” (71.4% for excluded cases and 69.0% for included cases).

\textsuperscript{11} Hourly pay is calculated by dividing the answer to question 30, “estimated 2008 pre-tax annual earnings” by 52 and then dividing that by the answer to question 27a, “number of hours worked in a typical week, including all overtime and on-call hours, except on-call hours that were stand-by only.”

\textsuperscript{12} The calculated hourly wage that is 2 standard deviations above the mean is a plausible hourly wage for RNs who report APRN titles.
While there are some differences between included and excluded cases related to race/ethnicity and country of training, the excluded cases represented about 5% of the sample and as such should have limited impact on the findings of this analysis.

In all, 4,028 cases were included in the study. The breakdown of the final sample (n=4,028) by race/ethnicity is as follows:

<table>
<thead>
<tr>
<th></th>
<th>Met All Eligibility Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>2939</td>
</tr>
<tr>
<td>% White</td>
<td>73%</td>
</tr>
<tr>
<td>Black</td>
<td>429</td>
</tr>
<tr>
<td>% Black</td>
<td>10.7%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>179</td>
</tr>
<tr>
<td>% Hispanic</td>
<td>4.4%</td>
</tr>
<tr>
<td>Asian</td>
<td>481</td>
</tr>
<tr>
<td>% Asian</td>
<td>11.9%</td>
</tr>
<tr>
<td>Total</td>
<td>4,028</td>
</tr>
<tr>
<td>% Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Given the small size of the sample of minority RNs, a single analysis of the entire sample was conducted. Since the RNs in the analysis worked in the central counties of 64 MSAs across the U.S., it was important to control for the geographic influence on earnings. The federal Bureau of Labor Statistics conducts a National Compensation Survey and uses data drawn from the survey to calculate pay relatives, i.e., comparisons of the pay in a given metropolitan area to the U.S. as a whole. Pay relatives are available for nine major occupational groups. One of the nine occupational categories is “professional and related” and includes health professionals, such as RNs. Consequently, the 2008 MSA-
specific Pay Relatives developed by the Bureau of Labor Statistics\textsuperscript{13} will be added to the annual hourly earnings of RNs based on their MSA of employment.

**Study Methods**

A key objective of this study is to determine whether the racial/ethnic pay disparities for hospital RNs found in an exploratory New York City study generalize to major urban areas across the entire U.S. Consistent with the New York City study, a regression decomposition was run to disaggregate the total economic value of human capital and job characteristics of a national sample of hospital RNs into constituent direct and indirect monetary worth. The decomposition results quantified racial/ethnic pay disparities for hospital RNs working in major urban areas across the U.S. The study findings also determined the extent to which racial/ethnic pay disparities, if detected, were related to differences in the possession of specific human capital or job characteristics or whether they are related to differences in the *monetary value* of the same characteristic for different racial/ethnic groups. The results of the regression decomposition showed both differences in the possession of specific human capital and job characteristics among the four racial/ethnic groups as well as differences in the monetary *value* of the same characteristic for Black RNs, Hispanic RNs, and Asian RNs as compared to White RNs. In addition, a Heckman correction was planned to be added to correct for selection bias, in relation to the likelihood of Asian RNs working more overtime hours than all other RNs, which could inflate their reported earnings.

Like the New York City study, the analysis was limited to those RNs working in hospitals. However, there were some differences in the structural and human capital variables included in the analysis based on differences in the instruments used in the two surveys, as illustrated in Table 12. A copy of the survey instrument used in the 2008 NSSRN is included as Appendix A and a copy of the survey instrument used in a study of New York City Hospital RNs (McGinnis et al., 2008) is included as Appendix B.

Table 12. Comparison of Variable in the New York Study and the Proposed Study

<table>
<thead>
<tr>
<th>Variables Used in the NYC RN Study</th>
<th>Proposed Variables in NSSRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity (q. 65 &amp; 66)</td>
<td>Race/ethnicity (q. 64a &amp; 64b)</td>
</tr>
<tr>
<td>Years worked as an RN (q.31)</td>
<td>Years worked as an RN (q. 50)</td>
</tr>
<tr>
<td>Years with current employer (q. 27)</td>
<td>Not available</td>
</tr>
<tr>
<td>Highest nursing degree &gt;= BSN (q. 1)</td>
<td>Highest nursing degree &gt;= BSN (q. 13)</td>
</tr>
<tr>
<td>Primary language is English (q. 67)</td>
<td>Country of initial nursing education (q. 5)</td>
</tr>
<tr>
<td>Current title (q. 29)</td>
<td>Current title (q.24)</td>
</tr>
<tr>
<td>Public hospital *</td>
<td>Not available</td>
</tr>
<tr>
<td>Academic health center *</td>
<td>Not available</td>
</tr>
<tr>
<td>In NYC, not Manhattan *</td>
<td>County population is greater than 1 million&lt;sup&gt;14&lt;/sup&gt;</td>
</tr>
<tr>
<td>Unionized *</td>
<td>Unionized (q. 31)</td>
</tr>
<tr>
<td>Not available</td>
<td>Paid overtime hours in a typical week (q. 27c)</td>
</tr>
</tbody>
</table>

* For the New York City study, surveys were coded to identify individual hospitals. Once a hospital was identified, other sources were used to identify sponsorship, academic teaching centers, location in the five New York City boroughs, and RN union status.

<sup>14</sup> Given wide variation in the size of MSAs, the variable which was originally proposed – “in the most populous county of the MSA” has been modified to control for more populous counties (county population of 1 million or greater) compared to less populous counties (county population less than 1 million).
Initially, a total of 11 independent variables of interest were included in the proposed study as follows:

- 3 dichotomous variables for race/ethnicity (Black, Hispanic, and Asian) with White as the excluded reference group;
- 1 continuous variable for years in nursing;
- 1 dichotomous variable for highest nursing degree $\geq$ BSN versus less than a BSN;
- 1 dichotomous variable for country of initial nursing education is U.S., yes or no;
- 2 dichotomous variables for current title (one for nurse manager and one for APRN and nurse educators combined$^{15}$) with staff RN as the excluded reference group;
- 1 dichotomous variable for county population greater than or equal to 1 million (versus less than 1 million);
- 1 dichotomous variable for unionized, yes or no; and
- 1 dichotomous variable for paid overtime, yes or no.

According to Bartlett et al. (2001), the most conservative estimates indicate that the ratio of observations to independent variables should not fall below 10. The ratio of observations to the 11 independent variables initially included in the analysis for each of the four racial/ethnic groups was as follows:

$^{15}$ There is an insufficient number of cases to separately compare nurse educators with staff RNs so the two categories, APRNs and nurse educators will be combined for this analysis.
White 2939/11=267.18
Black 429/11=39
Hispanic 179/11=16.27
Asian 481/11=43.72

Consequently, the sample size for each of the four racial/ethnic groups exceeded the most conservative standards and is therefore adequate for this study.

As originally proposed, the dependent variable was the log hourly wage and the independent variables included race/ethnicity and the human capital and job characteristics collected in the NSSRN as described below.

Specifically, Earnings were estimated at primary nursing position for full-time hospital RNs derived from NSSRN question 30, “Please estimate your 2008 pre-tax earnings from your principal nursing position. Include overtime and bonuses, but exclude sign-on bonuses.”

Hourly pay was calculated by dividing the answer to question 30 by 52 and then dividing that by the answer to question 27a, “number of hours worked, including all overtime and on-call hours, except on-call hours that were stand-by only.” Since overtime earnings cannot be separated from total earnings, overtime hours were included as a control variable.
Since the RNs in the analysis work in the central counties of 64 MSAs across the U.S., a geographic adjustment, a 2008 Pay Relative developed by the Bureau of Labor Statistics, was added to the hourly wage based on the MSA of employment. This controlled for the geographic influence on earnings.

An Ordinary Least Squares regression was used to estimate effects of race/ethnicity as well as relevant human capital and job characteristics on estimated 2008 log of hourly pay at primary nursing position for full-time hospital RNs, using White RNs as the reference group for each of the three minority groups, as follows:

\[ y_i = \alpha - \beta x_i - \epsilon_i. \]
\[ Y = \text{intercept} + b_1 \text{ (Black)} + b_2 \text{ (Hispanic)} + b_3 \text{ (Asian)} + b_4 \text{ (years worked as RN)} + b_5 \text{ (highest nursing degree -- either BSN or <BSN)} + b_6 \text{ (country of initial training)} + b_7 \text{ (job title -- either staff nurse or other title)} + b_8 \text{ (county pop > or < 1 million)} + b_9 \text{ (worked overtime)} + b_{10} \text{ (unionized hospital)}. \]

Separate Ordinary Least Squares regression equations were calculated for each of the four racial/ethnic groups to assess the effects of relevant human capital and job characteristics on estimated 2008 log of hourly pay at primary nursing position for full-time hospital RNs as follows:

\[ y_i = \alpha + \beta x_i + \epsilon_i. \]
\[ Y = \text{intercept} + b_1 \text{ (years worked as RN)} + b_2 \text{ (highest nursing degree -- either BSN or <BSN)} + b_3 \text{ (country of initial training)} + b_4 \text{ (job title -- either staff nurse or other title)} + b_5 \text{ (county pop > or < 1 million)} + b_6 \text{ (worked overtime)} + b_7 \text{ (unionized hospital)}. \]

A regression decomposition was performed, with a plan to correction for selectivity bias as follows:
where the *discrimination* portion of the equation shows the effects of differences in the monetary value of the same characteristic between two groups (compares either Black RN or Hispanic RN or Asian RN characteristic to White RN characteristic); where the *endowments* portion of the equation shows the effects of differences in the level of a characteristic between two groups (compares either Black RN or Hispanic RN or Asian RN characteristic to White RN characteristic); and where the *selectivity* portion of the equation corrects for racial/ethnic differences in selectivity for working overtime hours (Neuman et al., 2003).

The regression decomposition determined how much of the variation in hourly pay explained by the independent variables was due to differences in group human capital (endogenous) and job characteristics versus differences in the monetary labor market value of the same characteristics by race/ethnicity (exogenous). The latter (differences in the value of the same characteristic by different racial/ethnic groups) has been commonly used as a measure of discrimination in earnings (Canudas, 2003; Cowell, 2000; Fields et al., 2000; Gindling, 2009).
Analysis of Data and Findings

An initial analysis of the study data are presented below. As a result of this analysis, changes were made to the proposed methodology and are described beginning on page 54.

Analysis of the Dependent Variable: Adjusted Hourly Wage

An analysis of the skewness of the adjusted hourly wage (Table 19) revealed a skewness value of 1.227. It is generally agreed that when the value of skew falls between the range of +2 to -2, the data are considered to be normally distributed (Curran et al., 1996; Garson, 2012). Further, when the value of two standard errors of skewness (.004 x 2 = .008) is calculated in either direction from the value of skewness (1.227) for the adjusted hourly wage, the results are still well within the +/- 2 range (1.219 and 1.235, respectively). Efforts to remove outliers (in terms of both hourly wage and weekly hours) and to address geographic variation in salaries (using Bureau of Labor Statistics Pay Relatives) may have contributed to the relatively normal distribution of the adjusted hourly wage variable. While the analysis plan indicated that the adjusted hourly wage would be logged to control for lack of normal distribution, this analysis suggested that logging of the adjusted hourly wage was unnecessary.
A histogram of the adjusted hourly wage (Figure 2) also depicted a relatively normal distribution. The small amount of right skew is likely attributable to the adjusted hourly wage of advanced practice RNs included in the sample.
Analysis of Independent Variables

The following presents findings from an initial analysis of key independent variables of interest for the NSSRN. In addition to comparing differences in these variables by race/ethnicity for hospital RNs within the sample, the NSSRN was compared to the sample used in the New York City analysis. Differences in the human capital and job characteristics of RNs in the two samples could result in differences in the findings between the two studies.
Table 14 describes the NSSRN sample in terms of years worked, and 2008 adjusted hourly wage\textsuperscript{16} by race/ethnicity. White RNs, on average, had about 15½ years of nursing experience, followed by Black RNs with over 13¼ years, Asian RNs with nearly 12 years of experience, and Hispanic RNs who had the fewest years of experience, with just over 9¾ years. The adjusted hourly wage was higher for Asian RNs and White RNs ($34.19 and $33.05, respectively) compared to Black RNs and Hispanic RNs ($31.93 and $30.76 respectively).\textsuperscript{17} Using the Anova statistic, differences in years of experience and adjusted hourly wage between the four groups were found to be significant at the .01 level.

When comparing the NSSRN sample to the New York City sample, years of experience by race/ethnicity were somewhat consistent except for Asian RNs. In the NSSRN sample, Asian RNs reported about 12 years of nursing experience, compared to Asian RNs in the New York City sample who reported nearly 17½ years of nursing experience.

\textsuperscript{16} Adjusted hourly pay is calculated by dividing the answer to question 30, “Please estimate your 2008 pre-tax earnings from your principal nursing position. Include overtime and bonuses, but exclude sign-on bonuses” by 52 and then dividing that by the answer to question 27a, “number of hours worked, including all overtime and on-call hours, except on-call hours that were stand-by only.” A geographic adjustment, the 2008 Pay Relative developed by the Bureau of Labor Statistics, was added to the hourly wage based on the MSA of employment in order to control for geographic influences on RN earnings.

\textsuperscript{17} Information on adjusted hourly wage is not available for the hospital RNs in the New York City study.
Table 14. Years Worked as RN and Adjusted Hourly Wage by Race/Ethnicity for Hospital RNs in the NSSRN

<table>
<thead>
<tr>
<th></th>
<th>White RNs</th>
<th></th>
<th>Black RNs</th>
<th></th>
<th>Asian RNs</th>
<th></th>
<th>Hispanic RNs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>N</td>
<td>SD</td>
<td>Mean</td>
<td>N</td>
<td>SD</td>
<td>Mean</td>
<td>N</td>
</tr>
<tr>
<td>Years worked as RN</td>
<td>15.46</td>
<td>328,528</td>
<td>11.42</td>
<td>13.26</td>
<td>43,332</td>
<td>10.43</td>
<td>11.95</td>
<td>63,728</td>
</tr>
<tr>
<td>(since first U.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RN license)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted</td>
<td>33.05</td>
<td>328,528</td>
<td>9.31</td>
<td>31.93</td>
<td>43,332</td>
<td>8.32</td>
<td>34.19</td>
<td>63,729</td>
</tr>
<tr>
<td>Hourly Wage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 15 depicts the country of training for RNs in the NSSRN sample by race/ethnicity. The vast majority of White RNs completed training in the U.S. (98%), followed by Hispanic RNs (93%) and Black RNs (89%). Only about one-third of Asian RNs trained in the U.S. Using Lambda and the Goodman and Kruskal’s tau statistics, differences in country of training between the four groups in the NSSRN sample were found to be significant at the .01 level. Country of training reported by RNs in the NSSRN sample was very similar to country of training reported by RNs in the New York City sample, except for Asian RNs, where a much lower percentage (22%) in the New York City sample reported completing their RN training in the U.S. However, the majority of Asian RNs in both samples completed their initial training outside of the U.S.
Table 15. Country of Training by Race/Ethnicity for Hospital RNs in the NSSRN Sample

<table>
<thead>
<tr>
<th>Country Trained</th>
<th>White RNs</th>
<th>Black RNs</th>
<th>Asian RNs</th>
<th>Hispanic RNs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>United States</td>
<td>322,119</td>
<td>98%</td>
<td>38,668</td>
<td>89.2%</td>
</tr>
<tr>
<td></td>
<td>20,857</td>
<td>32.7%</td>
<td>24,589</td>
<td>93.2%</td>
</tr>
<tr>
<td>Not United States</td>
<td>6,410</td>
<td>2.0%</td>
<td>4,663</td>
<td>10.8%</td>
</tr>
<tr>
<td></td>
<td>42,872</td>
<td>67.3%</td>
<td>1,781</td>
<td>6.8%</td>
</tr>
</tbody>
</table>

As shown on Table 16, the majority of RNs in the NSSRN sample reported their title as “staff RN,” including 76.3 % of Asian RNs, followed by 75.3% of Hispanic RNs, 70% of Black RNs, and 67.6% of White RNs. The percentage of RNs reporting their title as “staff RN” in the New York City study was consistently higher by comparison (88.4% of Asian RNs, 82.9% of Hispanic RNs, 76.1% of Black RNs, and 71.9 % of White RNs.). At the same time, the percentage of RNs reporting a “nurse manager” title was higher in the NSSRN sample across all race/ethnicities compared to the New York City sample. In the NSSRN sample, 21.6% of White RNs reported a “nurse manager” title (compared to only 13.2% in the New York City sample); 24.3% of Black RNs reported a “nurse manager” title (compared to only 13.5% in the New York City sample); 18.1% of Asian RNs (compared to only 6.5% in the New York City sample); and 16.0% of Latino RNs (compared to only 10.6% in the New York City sample). White RNs were the most likely to report an “APRN” title (includes the following: certified registered nurse anesthetist, clinical nurse specialist, certified nurse midwife, and nurse practitioner) in both samples (8.0% in the NSSRN sample and 10% in the New York City sample). However 7.5% of
Hispanic RNs reported an “APRN” title in the NSSRN sample, compared to only 4.1% in the New York City sample. Comparable percentages of Black RNs and Asian RNs in the two samples reported an “APRN” title. White RNs were the most likely to report a “nurse educator/researcher” title in both samples (2.8% in the NSSRN sample and 4.9% in the New York City sample). A smaller percentage of Black RNs and Hispanic RNs in the NSSRN sample (1.6% and .9%, respectively) reported a “nurse educator/researcher” title compared to the New York City sample (5.2% and 2.5%, respectively). Comparable percentages of Asian RNs in the two samples reported a “nurse educator/researcher” title.

Using the Phi and Cramer’s V statistics, differences in reported titles between the four groups in the national sample were found to be significant at the .01 level.

### Table 16. RN Title by Race/Ethnicity for Hospital RNs in the NSSRN Sample

<table>
<thead>
<tr>
<th></th>
<th>White RNs</th>
<th>Black RNs</th>
<th>Asian RNs</th>
<th>Hispanic RNs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td><strong>Staff Nurse</strong></td>
<td>221,956</td>
<td>67.6%</td>
<td>30,352</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td>19,923</td>
<td>75.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nurse Manager</strong></td>
<td>71,063</td>
<td>21.6%</td>
<td>10,527</td>
<td>24.3%</td>
</tr>
<tr>
<td></td>
<td>4,220</td>
<td>16.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>APRN</strong></td>
<td>26,193</td>
<td>8.0%</td>
<td>1,745</td>
<td>4.0%</td>
</tr>
<tr>
<td></td>
<td>1,978</td>
<td>7.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nurse Educator/Researcher</strong></td>
<td>9,316</td>
<td>2.8%</td>
<td>708</td>
<td>1.6%</td>
</tr>
<tr>
<td></td>
<td>249</td>
<td>0.9%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As shown on Table 17, Asian RNs in the NSSRN sample were the most likely to report holding a bachelor’s or higher nursing degree (73.7%) followed by Hispanic RNs
(55.9%), White RNs (52.8%), and Black RNs (48.7%). Using the Pearson Chi-Square statistic, differences in highest nursing degree between the four groups in the NSSRN sample were found to be significant at the .01 level. Asian RNs in the New York City sample were also the most likely to report holding a bachelor’s or higher nursing degree (75%), followed by White RNs (67.6%), Black RNs (66.6%), and Hispanic RNs (62.1%).

Table 17. Highest RN Degree by Race/Ethnicity for Hospital RNs in the NSSRN Sample

<table>
<thead>
<tr>
<th>Highest RN Degree</th>
<th>White RNs</th>
<th>Black RNs</th>
<th>Asian RNs</th>
<th>Hispanic RNs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Associate or Lower</td>
<td>155,106</td>
<td>47.2%</td>
<td>22,224</td>
<td>51.3%</td>
</tr>
<tr>
<td>Bachelor’s or Higher</td>
<td>173,423</td>
<td>52.8%</td>
<td>21,108</td>
<td>48.7%</td>
</tr>
</tbody>
</table>

Table 18 depicts RNs in the NSSRN report of working overtime by race/ethnicity. The majority of RNs in the NSSRN sample reported working no overtime hours, with higher percentages of White RNs and Asian RNs (67.1% and 66.4%, respectively) and somewhat lower percentages of Black RNs and Hispanic RNs (60.9% and 59.7%, respectively) reporting no overtime hours worked. Using the Pearson Chi-Square statistic, differences in reports of overtime hours worked between the four groups in the NSSRN sample were found to be significant at the .01 level.

By contrast, smaller percentage of RNs in the New York City sample reported working no overtime hours. Nearly 60% of Asian RNs reported no overtime hours, followed by Hispanic RNs (53%), Black RNs (51.9%), and White RNs (48.9%).
Since the NSSRN includes a question about overtime hours worked, it was added as an independent variable in the analysis. Consequently, it was unnecessary to add a Heckman correction to the analysis to account for racial/ethnic differences in selectivity for working overtime hours.

Table 18. Report of Overtime Hours by Race/Ethnicity for Hospital RNs in the NSSRN Sample

<table>
<thead>
<tr>
<th>Overtime Worked</th>
<th>White RNs</th>
<th>Black RNs</th>
<th>Asian RNs</th>
<th>Hispanic RNs</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Overtime Hours Worked</td>
<td>220,523</td>
<td>67.1%</td>
<td>26,371</td>
<td>60.9%</td>
</tr>
<tr>
<td>Worked Overtime Hours</td>
<td>108,005</td>
<td>32.9%</td>
<td>16,961</td>
<td>39.1%</td>
</tr>
</tbody>
</table>

Table 19 describes union representation for hospital RNs in the NSSRN sample by race/ethnicity. Asian RNs and Black RNs were the most likely to report labor union representation (28.7% and 25.2%, respectively) followed by Hispanic RNs (21.2%). White RNs were the least likely to report union representation (16.7%). Using the Pearson Chi-Square statistic, differences in union representation between the four groups in the NSSRN sample were found to be significant at the .01 level. By contrast, hospital RNs in the New York City sample were three times more likely to report union representation i.e., 79% of Asian RNs, 74% of Black RNs, 65% of Hispanic RNs, and 53% of White RNs.
Table 19. Union Representation by Race/Ethnicity for Hospital RNs in the NSSRN Sample

<table>
<thead>
<tr>
<th>Represented by Labor Union</th>
<th>White RNs</th>
<th></th>
<th>Black RNs</th>
<th></th>
<th>Asian RNs</th>
<th></th>
<th>Hispanic RNs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>No</td>
<td>271,486</td>
<td>82.6%</td>
<td>31,073</td>
<td>71.7%</td>
<td>44,568</td>
<td>69.9%</td>
<td>19,296</td>
<td>73.2%</td>
</tr>
<tr>
<td>Yes</td>
<td>57,042</td>
<td>17.4%</td>
<td>12,258</td>
<td>28.3%</td>
<td>19,160</td>
<td>30.1%</td>
<td>7,074</td>
<td>26.8%</td>
</tr>
</tbody>
</table>

Preliminary Analysis

An initial regression decomposition was conducted and found that while hourly pay for Black RNs and Hispanic RNs was less than for White RNs, Asian RNs earned over $1.30 more. Asian RNs and Black RNs had the highest percentages of unexplained variation (90% and 76%, respectively), while Hispanic RNs had 57% unexplained variation (Table 20).

Table 20. Initial Regression Decomposition of the Differential in Full-Time Earnings Amongst White and Black, Hispanic, and Asian Full-Time Hospital RNs in the Study Sample

<table>
<thead>
<tr>
<th></th>
<th>Black-White</th>
<th>Hispanic-White</th>
<th>Asian-White</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Δβ</td>
<td>Δx</td>
<td>T</td>
</tr>
<tr>
<td>(Constant)</td>
<td>.59</td>
<td>0</td>
<td>.59</td>
</tr>
<tr>
<td>Years working as RN</td>
<td>.481</td>
<td>-.567</td>
<td>-.086</td>
</tr>
<tr>
<td>Highest nursing degree</td>
<td>-.223</td>
<td>-.059</td>
<td>-.282</td>
</tr>
<tr>
<td>Country trained</td>
<td>.049</td>
<td>.130</td>
<td>.179</td>
</tr>
<tr>
<td>Other vs. Staff RN</td>
<td>-.896</td>
<td>-.045</td>
<td>-.941</td>
</tr>
<tr>
<td>Union</td>
<td>-.129</td>
<td>.263</td>
<td>.135</td>
</tr>
<tr>
<td>Overtime</td>
<td>-.914</td>
<td>-.100</td>
<td>-1.014</td>
</tr>
<tr>
<td>Pop. Over 1 million</td>
<td>.295</td>
<td>.141</td>
<td>.437</td>
</tr>
<tr>
<td>Total Contribution</td>
<td>-0.747</td>
<td>-0.237</td>
<td>-0.982</td>
</tr>
<tr>
<td>Contribution as a percent:</td>
<td>76%</td>
<td>24%</td>
<td>100%</td>
</tr>
</tbody>
</table>
This suggested the possibility that key variables were missing from the analysis. Two potentially important missing variables were the shift worked (days, compared to evenings and nights) and years with current employer. Literature on shift work consistently finds racial/ethnic differences in shift work, with more minorities working evening and night shifts and more Whites working day shifts (Presser, 2003). Years with current employer had a positive impact on the salary of Asian RNs in the New York City study. Consequently, two variables were added to the analysis:

- Worked for current employer last year; and
- Estimated probability of working evening or night shifts (imputed)

The NSSRN does not ask a question about years with current employer, but does ask a question about whether the RN worked for his or her current employer last year. A dichotomous variable was added to the analysis, “Worked for current employer last year” – yes/no.

The NSSRN does not ask about shift work, specifically working the evening or overnight shift as compared to the day shift. Analysis of data from the New York City study (where a question about shift was asked) indicated that both White RNs and Black RNs working the day shift earned less than White RNs and Black RNs working the evening or overnight shift; they also earned less than Asian RNs or Hispanic RNs working the day shift. By contrast, Asian RNs and Hispanic RNs working the day shift earned more than Asian RNs or Hispanic RNs working the evening or overnight shift (Table 21). This analysis suggests that work shift is a key variable to include in the
analysis of racial/ethnic differences in hourly wages and it was decided to use imputation to create this variable in the NSSRN sample.

Table 21. Mean Salary for Full-Time Hospital RNs in New York City PMSA, by Usual Shift Worked and Race/Ethnicity

<table>
<thead>
<tr>
<th>Shift</th>
<th>Race/Ethnicity</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Day Shift</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>71346.1538</td>
<td>234</td>
<td>15390.26803</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>73247.8632</td>
<td>117</td>
<td>15275.01114</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>75930.2326</td>
<td>172</td>
<td>18935.66559</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>76526.7176</td>
<td>393</td>
<td>17247.37258</td>
<td></td>
</tr>
<tr>
<td><strong>Evening or Night Shift</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>79017.9283</td>
<td>1255</td>
<td>22494.60943</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>76407.1038</td>
<td>366</td>
<td>16248.31637</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>72807.6923</td>
<td>65</td>
<td>10675.50215</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>74632.7684</td>
<td>177</td>
<td>17569.04075</td>
<td></td>
</tr>
</tbody>
</table>

Because the NSSRN is a national dataset, however, it was important to use an imputation from a national dataset. The ACS is a large representative sample of the U.S. population and is useful for national estimates of various occupations, particularly the five-year survey which contains the years 2006, 2007, 2008, 2009, and 2010. For this effort, the ACS was broken into two different data subsets. The first ACS data subset contained only RNs in the four racial/ethnic groups used in the NSSRN analysis (i.e., White, Black, Asian, and Hispanic) who worked in hospitals between 24 and 60 hours per week in the same counties of employment as the RNs in the New York City study sample. The second data subset contained only RNs in the four racial/ethnic groups used in the NSSRN who worked in hospitals between 24 and 60 hours per week in the same counties of employment as the RNs in the NSSRN sample. While the ACS does not contain a variable for shift worked, it contains an excellent proxy variable. The ACS asks respondents the time at which they arrive at work, which provides a start time. Using a
minimum 8-hour shift estimate, the assigned shift was based on the greatest proportion of hours worked per either day or non-day shifts. The ACS dataset geographically matched to the New York City hospital RN study was then compared with the New York City hospital RN dataset which does contain a variable about the respondent’s usual shift. About 77% of the RNs in the New York City study sample reported working the day shift, while 23% reported the non-day shift; in the New York City subset of ACS with the constructed shift variable, 77% of RNs reported working the day shift and 23% the non-day shift. This conferred a high degree of validity to the construction of the shift variable within the ACS, particularly when the two datasets were matched to contain identical counties in which RNs in both samples were employed.

Using the constructed shift variable from the ACS (based on time when a respondent arrived at work), a number of demographic variables were run in a series of cross-tabulations to identify the predictor variables significantly associated with working the non-day shift. Three predictor variables of interest were found to be associated with the type of shift worked: married/partnered status, age, and the presence of children younger than age 6 living in the household. An imputation procedure based on the work of Pampel et al. (2000) was employed in order to create the shift variable in the NSSRN from information gleaned from the ACS and geographically matched with the counties of nursing employment in the NSSRN sample. The discrete dependent variable utilized in this procedure was shift worked [non-day shift (1) versus day shift (0)]. Following the approach of Pampel et al. (2000), sets of dummy predictor variables were used to allow for non-linearity and to maximize predictive accuracy. These include marital status.
[married or partnered (1) versus unmarried or partnered (0)], children younger than age 6 living in the household (1=yes, 0=no), and age (younger than 35, 35-44, 45-54, 55 and older, with younger than age 35 as the reference group).

Using data from those cases in which no missing values existed for either the dependent variable or any of the predictor variables, logistic regression was employed in order to compute the predicted probabilities for each possible predictor variable combination for each of the racial/ethnic groups. The procedure estimated a predicted shift worked probability for cases with complete data for all the independent variables. This yielded a total of 64 separate prediction equations. The log odds of the slopes were then mathematically calculated into odds, and from there into probabilities. The predicted probabilities from these equations were then applied to data from the NSSRN by each of the various 64 predictor variable combinations. The imputed probabilities from the NSSRN study sample were compared with the percentages from the ACS subset that was geographically matched with the counties of nursing employment in the NSSRN sample.

### Table 22. Comparison of Percent of Full-time Hospital RNs Working the Evening or Night Shift, by Race/Ethnicity, NSSRN (imputed), and the ACS Subset

<table>
<thead>
<tr>
<th></th>
<th>NSSRN sample (imputed)</th>
<th>ACS subset matched to NSSRN sample counties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>White</strong></td>
<td>23.7%</td>
<td>23.1%</td>
</tr>
<tr>
<td><strong>Black</strong></td>
<td>26.8%</td>
<td>28.3%</td>
</tr>
<tr>
<td><strong>Hispanic</strong></td>
<td>27.5%</td>
<td>26.2%</td>
</tr>
<tr>
<td><strong>Asian</strong></td>
<td>36.1%</td>
<td>35.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>25.1%</td>
<td>24.9%</td>
</tr>
</tbody>
</table>
A comparison between the NSSRN and the ACS subset indicated no significant differences between shift worked by race/ethnicity, which supports the use of the imputed variable in the analysis.

Revisions to the Proposed Methodology Based on the Initial Analysis

*Logging of adjusted hourly wage is unnecessary*

An analysis of the adjusted hourly wage variable found the cases to be relatively normally distributed. Originally, the analytic approach included using the natural log of the adjusted hourly pay, but since adjusted hourly pay was found to be relatively normally distributed in the initial analysis of the data, it was decided that logging of the variable was unnecessary.

*Heckman correction is not needed*

Since the NSSRN includes a question about overtime hours worked, it was included as an independent variable in the analysis. Consequently, it was unnecessary to add a Heckman correction to the analysis to account for racial/ethnic differences in selectivity for working overtime hours.

*Two variables added to the analysis*

In an effort to control for additional factors associated with hospital RN salary, two more variables were added to the analysis:

- Estimated proportion of RNs working evening or night shifts (imputed from ACS)
- Worked for current employer last year – yes/no
Revised method

The following fully details the revised approach to conducting this research study.

The data for this analysis were drawn from the 2008 NSSRN. In addition to meeting the geographic criteria of working as an RN in the U.S. and working in a central county of an MSA with a population of 1 million or greater, selection criteria for this study, which are consistent with the New York City hospital RN study, include the following:

- Race/ethnicity was White or Black or Hispanic or Asian;
- Worked in a hospital;
- Worked full time; and
- Reported one of the following titles:
  - Staff nurse
  - Nurse manager\(^{18}\)
  - Advanced practice registered nurse (APRN)\(^{19}\)
  - Nurse educator\(^{20}\)

In all, 4,028 cases were included. The breakdown of the final sample (n=4,028) by race/ethnicity is as follows White - 2,939 (73%); Black – 429 (10.7%); Hispanic – 179 (4.4%); and Asian – 481 (11.9%).

---

\(^{18}\) Includes the following titles: charge nurse or team leader, first line management (head nurse, floor supervisor), and middle management/administration (assistant director, department head).

\(^{19}\) Includes the following titles: certified registered nurse anesthetist, clinical nurse specialist, certified nurse-midwife, and nurse practitioner.

\(^{20}\) Includes the following titles: staff educator or instructor in a clinical setting, staff development director, instructor/lecturer, and researcher.
A regression decomposition was performed on a weighted sample to quantify racial/ethnic pay disparities among hospital RNs in major metropolitan areas of the U.S. The decomposition determined how much of the variation in hourly pay explained by the independent variables was due to differences in the possession of human capital and job characteristics versus differences in the monetary value of the same characteristic for RNs in different racial/ethnic groups. The latter (differences in the value of the same characteristic by different racial/ethnic groups) has been commonly used as a measure of discrimination in earnings (Canudas, 2003; Cowell, 2000; Fields et al., 2000; Gindling, 2009).

The independent variables included in this analysis have been revised, with two additional variables added. Table 23 provides a list of the variables, which are compared to the variables used in the New York study.
Table 23. Comparison of Variables in the New York City Study and the Proposed Study, Revised

<table>
<thead>
<tr>
<th>Variables Used in New York RN Study</th>
<th>Proposed Variables in National RN Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity (q. 65 &amp; 66)</td>
<td>Race/ethnicity (q. 64a &amp; 64b)</td>
</tr>
<tr>
<td>Years worked as an RN (q.31)</td>
<td>Years worked as an RN (q. 50)</td>
</tr>
<tr>
<td>Years with current employer (q. 27)</td>
<td>Same employer as last year (q. 54)</td>
</tr>
<tr>
<td>Highest nursing degree &gt;= BSN (q. 1)</td>
<td>Highest nursing degree &gt;= BSN (q. 13)</td>
</tr>
<tr>
<td>Primary language is English (q. 67)</td>
<td>Country of initial nursing education (q. 5)</td>
</tr>
<tr>
<td>Current title (q. 29)</td>
<td>Current title (q.24)</td>
</tr>
<tr>
<td>Public hospital *</td>
<td>Not available</td>
</tr>
<tr>
<td>Academic health center *</td>
<td>Not available</td>
</tr>
<tr>
<td>In NYC, not Manhattan *</td>
<td>County population is greater than 1 million(^{21})</td>
</tr>
<tr>
<td>Unionized *</td>
<td>Unionized (q. 31)</td>
</tr>
<tr>
<td>Not available</td>
<td>Paid overtime hours in a typical week (q. 27c)</td>
</tr>
<tr>
<td>Available (q20), but not used</td>
<td>Estimated proportion of RNs working evening or night shifts (imputed from ACS)</td>
</tr>
</tbody>
</table>

The dependent variable is hourly wage and the independent variables include race/ethnicity and the human capital and job characteristics collected in the NSSRN or imputed.

\(^{21}\) Given wide variation in the size of MSAs, the variable which was originally proposed – “in the most populous county of the MSA” has been modified to control for more populous counties (county population of 1 million or greater) compared to less populous counties (county population less than 1 million).
In total, there are 13 independent variables of interest for the proposed study including:

- 3 dichotomous variables for race/ethnicity (Black, Hispanic, and Asian) with White as the excluded reference group;
- 1 continuous variable for years in nursing;
- 1 dichotomous variable for same employer as last year;
- 1 dichotomous variable for highest nursing degree \( \geq \) BSN versus less than a BSN;
- 1 dichotomous variable for country of initial nursing education is U.S., yes or no;
- 2 dichotomous variables for current title (one for nurse manager and one APRN and nurse educators combined\(^{22}\)) with staff RN as the excluded reference group;
- 1 dichotomous variable for county population is greater than or equal to 1 million versus less than 1 million;
- 1 dichotomous variable for unionized, yes or no.;
- 1 dichotomous variable for paid overtime, yes or no; and
- 1 continuous variable for estimated proportion of RNs who work evening or night shifts.

According to Bartlett et al. (2001), the most conservative estimates indicate that the ratio of observations to independent variables should not fall below 10. The ratio of observations to the 13 independent variables for each of the four racial/ethnic groups is as follows:

- White \( \frac{2939}{13} = 226.07 \)

\(^{22}\) There is an insufficient number of cases to separately compare nurse educators with staff RNs so the two categories, APRNs and nurse educators will be combined for this analysis.
• Black 429/13=33
• Hispanic 179/13=13.76
• Asian 481/13=37

Consequently, the sample size for each of the four racial/ethnic groups exceeded the most conservative standards and was therefore adequate for this study.

The analytic approach is described below:

Earnings were estimated at primary nursing position for full-time hospital RNs derived from NSSRN question 30, “Please estimate your 2008 pre-tax earnings from your principal nursing position. Include overtime and bonuses, but exclude sign-on bonuses.” Hourly pay is calculated by dividing the answer to question 30 by 52 and then dividing that by the answer to question 27a, “number of hours worked, including all overtime and on-call hours, except on-call hours that were stand-by only.” Since overtime earnings could not be separated from total earnings, overtime hours were included as a control variable. A geographic adjustment, the 2008 Pay Relative developed by the Bureau of Labor Statistics, was added to the hourly wage based on the MSA of employment, in order to control for geographic influences on RN earnings.

An Ordinary Least Squares regression estimated effects of race/ethnicity as well as relevant human capital and job characteristics on adjusted hourly pay at primary nursing position for full-time hospital RNs, using White RNs as the reference group, as follows:
\[ y_i = \alpha + \beta x_i + \epsilon_i, \]

\( Y = \text{intercept} + b_1 \text{ (Black)} + b_2 \text{ (Hispanic)} + b_3 \text{ (Asian)} + b_4 \text{ (years worked as RN)} + b_5 \text{ (same employer as last year)} + b_6 \text{ (highest nursing degree--either BSN or <BSN)} + b_7 \text{ (country of initial training)} + b_8 \text{ (job title--either staff nurse or other title)} + b_9 \text{ (county pop > or < 1 million)} + b_{10} \text{ (worked overtime)} + b_{11} \text{ (unionized hospital)} + b_{12} \text{ (estimated proportion of RNs working evening or night shifts).} \)

Separate Ordinary Least Squares regression equations for each of the four racial/ethnic groups assessed the effects of relevant human capital and job characteristics on adjusted hourly pay at primary nursing position for full-time hospital RNs as follows:

\[ y_i = \alpha + \beta x_i + \epsilon_i, \]

\( Y = \text{intercept} + b_1 \text{ (years worked as RN)} + b_2 \text{ (same employer as last year)} + b_3 \text{ (highest nursing degree--either BSN or <BSN)} + b_4 \text{ (country of initial training--either in the U.S. or not in the U.S.)} + b_5 \text{ (job title- either staff nurse or other title)} + b_6 \text{ (county pop > or < 1 million)} + b_7 \text{ (worked overtime)} + b_8 \text{ (unionized hospital)} + b_9 \text{ (estimated proportion of RNs working evening or night shifts).} \)

A regression decomposition was performed\(^\text{23}\):

\[
\overline{Y}_{1m} - \overline{Y}_{1f} = \bar{X}_{1f}' (\widehat{\beta}_{1m} - \widehat{\beta}_{1f}) + (\bar{X}_{1m} - \bar{X}_{1f})' \widehat{\beta}_{1m}
\]

where the \textit{discrimination} portion of the equation showed the effects of differences in the monetary value of the same characteristic between two groups (compares Black or Hispanic or Asian RN characteristic to White RN characteristic); where the \textit{endowments} portion of the equation showed the effects of differences in the level of a characteristic.

\(^{23}\) Given the findings from the initial analysis, a correction for selectivity bias was not included.
between two groups (compares Black or Hispanic or Asian RN characteristic to White RN characteristic) (Neuman et al., 2003).

Table 24 summarizes the dependent and independent variables of interest in the weighted sample that are included in the proposed analysis for this study and shows differences in these variables by race/ethnicity.

**Table 24. Summary Table of Descriptive Statistics for Hospital RNs in the Study Sample by Race/Ethnicity**

<table>
<thead>
<tr>
<th>Variable</th>
<th>White RNs</th>
<th>Black RNs</th>
<th>Hispanic RNs</th>
<th>Asian RNs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
</tr>
<tr>
<td>Years worked as RN</td>
<td>15.46</td>
<td>11.42</td>
<td>13.26</td>
<td>10.43</td>
</tr>
<tr>
<td>Adjusted hourly wage</td>
<td>33.05</td>
<td>9.31</td>
<td>31.93</td>
<td>8.32</td>
</tr>
<tr>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Highest nursing degree &gt;= BSN (1=yes)</td>
<td>173,423</td>
<td>52.8%</td>
<td>21,108</td>
<td>48.7%</td>
</tr>
<tr>
<td>Country of Nursing Education (1=not US)</td>
<td>6,410</td>
<td>2.0%</td>
<td>4663</td>
<td>10.8%</td>
</tr>
<tr>
<td>Staff RN (1=yes)</td>
<td>221,956</td>
<td>67.6%</td>
<td>30,352</td>
<td>70%</td>
</tr>
<tr>
<td>Nurse manager (1=yes)</td>
<td>71,063</td>
<td>21.6%</td>
<td>10,527</td>
<td>24.3%</td>
</tr>
<tr>
<td>Advanced practice nurse (1=yes)</td>
<td>26,193</td>
<td>8.0%</td>
<td>1,745</td>
<td>4.0%</td>
</tr>
<tr>
<td>Nurse educator/researcher (1=yes)</td>
<td>9,316</td>
<td>2.8%</td>
<td>708</td>
<td>1.6%</td>
</tr>
<tr>
<td>Worked paid overtime (1=yes)</td>
<td>108,005</td>
<td>32.9%</td>
<td>16,961</td>
<td>39.1%</td>
</tr>
<tr>
<td>Union (1=yes)</td>
<td>57,042</td>
<td>17.4%</td>
<td>12,258</td>
<td>28.3%</td>
</tr>
<tr>
<td>Population of county of employment &gt; 1 million</td>
<td>155,910</td>
<td>47.5%</td>
<td>25,062</td>
<td>57.8%</td>
</tr>
<tr>
<td>Probability of working evening or night shifts (imputed)</td>
<td>76,218</td>
<td>23.2%</td>
<td>11,613</td>
<td>26.8%</td>
</tr>
<tr>
<td>Same employer as one year ago</td>
<td>277,712</td>
<td>91.0%</td>
<td>36,598</td>
<td>90.1%</td>
</tr>
</tbody>
</table>
Discussion

White RNs in the sample had the most years of experience (15.46 years), followed by Black RNs (13.26 years), Asian RNs (11.95 years), and Hispanic RNs (9.77 years). Interestingly, Asian RNs reported the highest hourly earnings ($34.19), followed by White RNs ($33.05), Black RNs ($31.93), and Hispanic RNs ($30.76).

Asian RNs were the most likely to report a BSN or higher as their highest degree (73.7%), while Black RNs (48.7%) were the least likely. Further, over two-thirds of Asian RNs completed their initial nursing education outside of the U.S., while much smaller percentages of Black RNs (10.7%), Hispanic RNs (6.8%), and White RNs (2.0%) completed their initial nursing education outside of the U.S. Yet despite their higher levels of nursing education, over three-quarters of Asian RNs reported a staff nurse title, which was comparable to Hispanic RNs (75.3%), but higher than either Black RNs (70.0%) or White RNs (67.6%). Almost one-quarter of Black RNs reported a nurse manager title, followed by White RNs (21.6%), Asian RNs (18.1%), and Hispanic RNs (16.0%). White RNs and Hispanic RNs were the most likely to report APRN titles (8.0% and 7.5%, respectively), while Black and Asian RNs were the least likely (4.0% and 4.4%, respectively). Black RNs and Hispanic RNs were the most likely to report working paid overtime (39.1% and 40.3%, respectively), while White RNs and Asian RNs were the least likely to report paid overtime (32.9% and 33.6%, respectively). Asian RNs were most likely to report working at a unionized hospital (30.1%), followed by Black RNs (28.3%), Hispanic RNs (26.8%), and White RNs (17.4%). Hispanic, Asian, and Black RNs were most likely to work in counties with a population of 1 million or more (75.0%,
68.9%, and 57.8%, respectively) while White RNs were much less likely to work in the most populous counties (47.5%).

When comparing the NSSRN sample to the New York City study sample, important differences emerged. Asian RNs in the NSSRN sample had substantially fewer years of nursing experience. There was more variation in the titles reported by RNs in the NSSRN sample compared to the New York City sample, with smaller percentages of staff RNs for all four racial/ethnic categories. RNs in the NSSRN sample were less likely to report working overtime hours compared to RNs in the New York City sample. RNs in the NSSRN sample were also substantially less likely to report union representation compared to the New York City sample. In a recent Economic News Release by the U.S. Bureau of Labor Statistics, an analysis of 2012 Current Population Survey data on union membership found that New York had the highest union membership rate in the country, 23.2% of workers, compared to 11.3% of workers nationally.24

One of the most relevant findings from this initial analysis relates to overtime hours worked. The majority of RNs in the NSSRN sample across all racial/ethnic groups reported working no overtime hours. There are at least two factors that could influence this variation—labor union membership and differences in the time periods the two surveys were conducted. First, as indicated previously, RNs in the New York City sample were much more likely to report union representation than RNs in the NSSRN sample. A 2005 study of factors that influence use of RN overtime in New York hospitals (Berney

24 http://www.bls.gov/news.release/union2.nr0.htm
et al., 2005) found that hospitals with unionized RNs were associated with a 22% higher rate of overtime, compared to non-unionized hospitals. Further, the New York City survey was conducted in 2006, while the NSSRN was conducted in 2008. There were substantial differences in the country’s economy in 2006, compared to 2008. In 2006, the national economic was relatively robust and demand for RNs was strong, while 2008 marked the beginning of an economic downturn and a resulting decline in demand for RNs. In an annual survey of New York RN program deans and directors, 95% reported “many jobs” for their graduates in 2006, while only 25% reported “many jobs” for their graduates in 2010 (Martiniano et al., 2011). Since the NSSRN included a question about overtime hours worked, it is included as an independent variable in the analysis. Consequently, it was unnecessary to add a Heckman correction to the analysis to account for racial/ethnic differences in selectivity for working overtime hours.

**Results**

As depicted in Table 25, all variables of interest were included in a regression analysis to predict estimated earnings for full-time hospital RNs. Given the small number of cases for titles other than “staff nurse,” all other RN titles (nurse manager, APRN, and nurse educator/researcher) were aggregated into one variable and compared to the reference group, “staff RN.” Almost all of the covariates included in the regression are highly significant, justifying their inclusion in this analysis. Further, even after controlling for the highly significant covariates, race/ethnicity exerted an independent effect on RN earnings. The adjusted R-square for this model was .157, which means that these variables explained about 16% of the variation in RN earnings.
Table 25. OLS Regression Coefficients Predicting Estimated Earnings at Primary Nursing Job for Full-Time Hospital RNs in the Study Sample

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Sig.</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>26.275</td>
<td>.000</td>
<td>.084</td>
</tr>
<tr>
<td>White (reference group)</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Black</td>
<td>-.798</td>
<td>.000</td>
<td>.045</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-1.409</td>
<td>.000</td>
<td>.58</td>
</tr>
<tr>
<td>Asian</td>
<td>1.174</td>
<td>.000</td>
<td>.061</td>
</tr>
<tr>
<td>Years worked as RN</td>
<td>.218</td>
<td>.000</td>
<td>.001</td>
</tr>
<tr>
<td>Highest nursing degree &gt;= BSN</td>
<td>1.740</td>
<td>.000</td>
<td>.027</td>
</tr>
<tr>
<td>Country of Nursing Education</td>
<td>.471</td>
<td>.000</td>
<td>.054</td>
</tr>
<tr>
<td>Staff RN (reference group)</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Other title (1=Nurse manager, advanced practice nurse or nurse educator/researcher)</td>
<td>2.684</td>
<td>.000</td>
<td>.029</td>
</tr>
<tr>
<td>Worked paid overtime (1=yes)</td>
<td>-.721</td>
<td>.000</td>
<td>.027</td>
</tr>
<tr>
<td>Union (1=yes)</td>
<td>2.277</td>
<td>.000</td>
<td>.032</td>
</tr>
<tr>
<td>Population of county of employment &gt; 1 million</td>
<td>1.208</td>
<td>.000</td>
<td>.026</td>
</tr>
<tr>
<td>Probability of working evening or night shifts (imputed)</td>
<td>-.106</td>
<td>.000</td>
<td>.231</td>
</tr>
<tr>
<td>Worked for same employer last year</td>
<td>1.211</td>
<td>.000</td>
<td>.044</td>
</tr>
</tbody>
</table>

While the model shown on Table 25 controlled for differences in characteristics among the four racial/ethnic groups, it could not account for the possibility that characteristics are valued differently in the labor market for the four groups. As shown on Table 26, four separate regression equations were estimated to predict earnings among the RNs in the four different racial/ethnic groups. Adjusted R-squares for the four separate regressions vary widely from .123 for Asian RNs and .152 for White RNs to .208 for Black RNs and .302 for Hispanic RNs. The regression decomposition revealed more differences in the value of the same characteristics for Asian RNs and White RNs.
Table 26. OLS Regression Coefficients Predicting Estimated Earnings at Primary Nursing Job for Full-Time Hospital RNs in the Study Sample, by Race/Ethnicity

<table>
<thead>
<tr>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>β</td>
<td>Std. Error</td>
<td>β</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>25.77</td>
<td>.115</td>
<td>26.082</td>
</tr>
<tr>
<td>Years worked as RN</td>
<td>.229</td>
<td>.002</td>
<td>.262</td>
</tr>
<tr>
<td>Highest nursing degree &gt;= BSN (1=yes)</td>
<td>1.669</td>
<td>.032</td>
<td>1.690</td>
</tr>
<tr>
<td>Country of Nursing Education (1=not US)</td>
<td>.973</td>
<td>.108</td>
<td>1.885</td>
</tr>
<tr>
<td>Staff RN (1=yes) reference group</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Other title (1=Nurse manager, advanced practice nurse or nurse educator/researcher)</td>
<td>3.098</td>
<td>.035</td>
<td>.082</td>
</tr>
<tr>
<td>Worked paid overtime (1=yes)</td>
<td>-.320</td>
<td>.033</td>
<td>-2.948</td>
</tr>
<tr>
<td>Union (1=yes)</td>
<td>2.637</td>
<td>.041</td>
<td>1.804</td>
</tr>
<tr>
<td>Population of county of employment &gt; 1 million</td>
<td>.993</td>
<td>.031</td>
<td>2.183</td>
</tr>
<tr>
<td>Probability of working evening or night shifts (imputed)</td>
<td>2.898</td>
<td>.337</td>
<td>2.714</td>
</tr>
<tr>
<td>Worked for same employer last year</td>
<td>1.136</td>
<td>.054</td>
<td>.261</td>
</tr>
<tr>
<td>Adjusted R-square</td>
<td>.152</td>
<td>.208</td>
<td>.302</td>
</tr>
</tbody>
</table>

The regression decomposition is depicted on Table 27 and reflects differences in earnings between White RNs and Black RNs, White RNs and Hispanic RNs, and White RNs and Asian RNs in NSSRN sample. The $\Delta x$ column shows the effects of the differential level of the characteristic between the two groups, while the $\Delta \beta$ column shows the effects of the differential influence of that characteristic on earnings between the two groups. When the value of $\Delta x$ is greater than the value of $\Delta \beta$, the earnings differential is primarily affected through differing levels of that endowment. When the value of $\Delta \beta$ is greater than the value of $\Delta x$, the earnings differential is primarily affected through the differential valuation of that endowment for the two groups.
Table 27. Regression Decomposition of the Differential in Full-Time Earnings between White and Black, Hispanic, and Asian Full-Time Hospital RNs in the Study Sample

<table>
<thead>
<tr>
<th></th>
<th>Black-White</th>
<th>Hispanic-White</th>
<th>Asian-White</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>0.805</td>
<td>-1.421</td>
<td>6.773</td>
</tr>
<tr>
<td>Years Working as RN</td>
<td>0.474</td>
<td>0.391</td>
<td>0.840</td>
</tr>
<tr>
<td>Same employer as last year</td>
<td>-0.792</td>
<td>-0.231</td>
<td>0.058</td>
</tr>
<tr>
<td>Highest nursing degree &gt;= BSN</td>
<td>0.011</td>
<td>0.853</td>
<td>0.140</td>
</tr>
<tr>
<td>Country trained (not US)</td>
<td>0.058</td>
<td>-0.003</td>
<td>0.848</td>
</tr>
<tr>
<td>Other title (not staff RN)</td>
<td>-0.607</td>
<td>-0.197</td>
<td>0.008</td>
</tr>
<tr>
<td>Unionized hospital</td>
<td>-0.190</td>
<td>0.064</td>
<td>0.140</td>
</tr>
<tr>
<td>Worked overtime</td>
<td>-0.946</td>
<td>-0.479</td>
<td>-0.051</td>
</tr>
<tr>
<td>Work in county&gt; 1 mil pop</td>
<td>0.627</td>
<td>0.322</td>
<td>0.424</td>
</tr>
<tr>
<td>Probability of working eve or night</td>
<td>-0.046</td>
<td>-0.374</td>
<td>-3.895</td>
</tr>
<tr>
<td>Total Contribution</td>
<td>-0.606</td>
<td>-1.075</td>
<td>1.121</td>
</tr>
<tr>
<td>% Contribution</td>
<td>83%</td>
<td>17%</td>
<td>79%</td>
</tr>
</tbody>
</table>

Table 27 reveals different findings for the three racial/ethnic groups when compared to Whites. Both Black RNs and Hispanic RNs earned less than White RNs, while Asian RNs earned more than White RNs. Specifically,

- Hispanic RNs earned $1.91 less than White RNs;
- Black RNs earned $.73 less than White RNs; and
- Asians earned $.89 more than White RNs.

The analysis found that Black RNs earned about .73 cents less per hour than White RNs, which is estimated to represent about $1,500 annually. About 17% of the difference is attributed to differences in the possession of characteristics, including years of experience and educational level, while 83% is attributed to differences in the value of the same characteristics, including working for the same employer as last year, having a job title higher than staff nurse, and working overtime. One characteristic, working in a county
with a population of 1 million or more, was actually worth more to the salaries of Black RNs compared to White RNs. In the analysis from the New York City study, Black RNs earned just over $6,000 per year less than White RNs, half attributed to differences in the possession of characteristics and half attributed to differences in the value of the same characteristic, including nursing experience and having a job title higher than staff nurse.

Hispanic RNs earned nearly $2.00 less per hour than White RNs, which is estimated to represent about $4,000 annually. Approximately 44% of the earning differential was due to differences in characteristics, most notably fewer years of experience, while 56% was due to differences in the value of the same characteristic between the two groups, including working for the same employer as last year, having a job title higher than staff nurse, working overtime and working evening or nights. Having a BSN or higher and working in a county with a population of 1 million or more was worth more to the earnings of Hispanic RNs compared to White RNs. In the New York City study, Hispanic RNs earned nearly $7,400 less than White RNs, and two-thirds of the differential in earnings was due to differences in the possession of characteristics, particularly years of experience, and the remaining one-third was due to differences in the value of the same characteristic, including years working as an RN and English proficiency.

Interestingly, Asian RNs earned almost $.90 more per hour than White RNs, which is approximately $1,872 annually. About 21% of the earning differential was based on differences in characteristics, most notably Asian RNs were more likely to be foreign-trained and working in a county with a population of 1 million or more. Approximately
79% was due to differences in the value of the same characteristic between the two groups, i.e., working for the same employer as last year was worth more to Asian RNs than White RNs. Some of the unexplained difference was worth less to Asian RNs than White RNs, including the probability of working evenings or nights, working in a unionized hospital, and having a BSN or higher degree. In the New York City study, Asian RNs earned $5,992 less than White RNs, and over two-thirds was due to differences in the possession of characteristics, most notably because Asian RNs tended to work in staff RN positions and spoke English as a second language. One-third of the difference was due to differences in the value of the same characteristic, including years of nursing experience and English proficiency.

The findings on pay disparities between White RNs and Asian RNs in the New York City study are inconsistent with the findings from the NSSRN study. It is possible that both studies could accurately reflect pay disparities in different geographies – one for New York City and the other for major metropolitan areas across the country. The inconsistent findings may in fact be related to differences in the characteristics of RNs in the two samples.

There are a number of important differences in characteristics between the Asian hospital RNs included in the New York City study sample and the NSSRN sample. Compared to the New York City sample, the Asian RNs in the NSSRN study sample:

- Reported fewer years of RN experience (11.95 compared to 17.45 years);
- Were less likely to report a staff nurse title (76.3% compared to 88.4%);
Were much more likely to report a nurse manager title (18.1% compared to 7%); and
Were more likely to report completing their initial RN training in the U.S. (32.7% compared to 22%).

Further, it is important to note that Asian RNs in both samples were equally as likely to report holding a BSN or higher (73.7% in the NSSRN sample and 75% in the New York City sample). In addition, Asian RNs were the most likely to report holding a BSN or higher, compared to Whites (52.8%), Blacks (48.7%), and Hispanics (55.9%).

A recent Institute of Medicine report on registered nursing (2010) emphasized the importance of educational attainment in nursing and called for 80% of active RNs to hold bachelor’s degrees by 2020. In addition, as newly trained RNs face a very competitive job market today, BSNs are in greater demand than ADNs. Consequently, Asian RNs may have a competitive advantage in nursing based on their higher level of educational attainment compared to White, Black, and Hispanic RNs.

When compared to samples drawn from the ACS (2006-2010), Asian hospital RNs earned more than their White counterparts in both New York City and in the most populous MSAs in the country. A sample of hospital RNs was drawn from the ACS and matched to the variables used in the New York City study. The sample included hospital RNs with ADNs or higher who were employed 24-60 hours per week and who worked in
the same geographic areas as the RNs included in the New York City hospital RN study. Hourly wage for this sample of RNs was calculated and is presented below in Table 28.

Table 28. Mean Hourly Wage for New York Hospital RN Sample Drawn from the ACS

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Mean Hourly Wage</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>37.3116</td>
<td>21881</td>
</tr>
<tr>
<td>Black</td>
<td>34.4512</td>
<td>16652</td>
</tr>
<tr>
<td>Hispanic</td>
<td>33.8518</td>
<td>4276</td>
</tr>
<tr>
<td>Asian</td>
<td>38.1324</td>
<td>13945</td>
</tr>
<tr>
<td>Total</td>
<td>36.4133</td>
<td>56754</td>
</tr>
</tbody>
</table>

Source: ACS, 2006-2010

This analysis found that Asian RNs working in New York City hospitals earned the highest hourly wage ($38.13) followed by White RNs ($37.31), Blacks RNs ($34.45), and Hispanic RNs ($33.85). This result is consistent with the findings from the NSSRN study. A sample of hospital RNs was drawn from the ACS and matched to the variables used in the NSSRN study. An analysis of mean hourly wage by race/ethnicity produced results similar to the results of the NSSRN study, i.e., Asian RNs earned more than White RNs. Both Hispanic RNs and Black RNs earned less than White RNs and Asian RNs.

Table 29. Mean Hourly Wage for National Hospital RN Sample Drawn from the ACS

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Mean Hourly Wage</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>30.5344</td>
<td>126074</td>
</tr>
<tr>
<td>Black</td>
<td>29.1629</td>
<td>14422</td>
</tr>
<tr>
<td>Hispanic</td>
<td>29.7718</td>
<td>5739</td>
</tr>
<tr>
<td>Asian</td>
<td>37.0415</td>
<td>16681</td>
</tr>
<tr>
<td>Total</td>
<td>31.0524</td>
<td>162916</td>
</tr>
</tbody>
</table>

ACS, 2006-10

The results of this study only partially support the proposed hypotheses for this research. Specifically, the research supported the hypothesis that White hospital RNs earned more
than Black and Hispanic hospital RNs. However, a number of hypotheses were disproved, including:

- White hospital RNs do not earn more than Asian hospital RNs;
- A higher percentage of the variation in pay for White hospital RNs, compared to Asian, Black, and Hispanic hospital RNs was due to differences in the value of the same characteristic between the groups.

In an effort to fully understand these findings, it is important to consider that Whites and Asians are both overrepresented in the RN workforce, compared to their presence in the general population. Blacks and Hispanics, on the other hand, are underrepresented in the nursing workforce compared to their presence in the general population.

A key finding from this study is that Black and Hispanic hospital RNs earn less than their White and Asian counterparts, and according to the decomposition, most of the difference for Black RNs (83%) and over half of the difference for Hispanic RNs (56%) is unexplained. This and other studies suggest that minorities who are underrepresented in registered nursing are more likely to experience pay disparities compared to racial/ethnic groups who are overrepresented in nursing and the majority of the variation is unexplained.

**Contribution of Study to Current Knowledge**

This research study is unique; a literature review did not yield any other similar studies that have been conducted to date except for the 2009 and 2011 studies described
previously. The study based on a 2006 survey of hospital RNs in New York City found racial/ethnic pay disparities for RNs who worked in New York City hospitals. The study was considered exploratory, given its limitations (McGinnis et al., 2009). More recently, McGregor (2011) analyzed wage differences between Black RNs and White RNs in the U.S. and found that the hourly wage of Black RNs was less, on average, than the hourly wage of White RNs.

**Policy Relevance of Research Findings**

A number of policy implications emerge from the study findings. The RN workforce has not kept pace with the changing diversity of the U.S. population. Between 2004 and 2008, the percent of Hispanic RNs in the U.S. has more than doubled (from 1.7% to 3.6%), and yet it falls well below the percent of Hispanics in the U.S. population (15.4% in 2008). The percent of Black RNs in the U.S. has grown more slowly over the years (from 3.6% in 1988 to 5.4% in 2008), but it also remains well below the percent of Blacks in the U.S. population (12.2% in 2008). Efforts to reduce racial/ethnic health disparities require a culturally competent health workforce. It is widely recognized that a racially and ethnically diverse health workforce can enhance the cultural competence of the workforce overall and ultimately reduce health disparities. (American College of Physicians, 2004; Betancourt, 2006; Betancourt et al., 2003; Brach, 2000; Brach, 2002; Cohen et al., 2002; Reede, 2003; Smedly et al., 2004; Sullivan Commission, 2004; Sullivan et al., 2010).
Both Blacks and Hispanics are underrepresented in nursing. Clearly, the nursing profession must redouble its efforts to increase the number of underrepresented minorities within its ranks. There is general acknowledgement that the quality of K-12 education is not as good for Blacks and Hispanics as it is for Whites (Sullivan Commission, 2004; Coffman, et al., 2001), and this difference in quality may limit the underrepresented minority candidate pool that can be recruited into registered nursing. Increasing diversity requires a commitment to strengthen the pipeline to recruit minorities into nursing education programs and provide the needed supports to retain them (Bednarz, 2010). Strategies could include, among others, nursing school partnerships with the K-12 education system to provide academic enrichment for underrepresented minority students interested in nursing careers, retention programs for underrepresented minority nursing students that include mentoring and tutoring, and increasing the number of Black and Hispanic faculty to serve as role models for students. While there are a number of government- and foundation-sponsored programs designed to increase diversity in nursing, one of the largest and best known is the Nursing Workforce Diversity Program,25 sponsored by the federal Health Resources and Services Administration. These grants principally target schools of nursing across the country and aim to recruit and retain minorities and other underserved populations into nursing. Despite the longstanding commitment to this initiative, there has been little systematic assessment of outcomes to identify the best strategies to achieve the goal of increased diversity in nursing. A better understanding of the most (and least) effective approaches to increasing RN diversity could inform efforts made by the broader nursing education community.

Black RNs earned less than White RNs in part because they were less likely to hold BSNs. As noted previously, there has been increasing attention to the importance of educational attainment in registered nursing (IOM, 2010). Further, the BSN is crucial for further advancement in registered nursing, i.e., APRNs are usually master’s prepared or higher. Career ladders in nursing that support advancement from ADN to BSN are critical to efforts that can reduce wage disparities for Black RNs based on education level. Further, employer support for pursuing advanced nursing education is also vital to success. Support can take many forms, including tuition reimbursement, flexible scheduling, and paid leave to attend classes.

Both Black and Hispanic RNs earned less than White RNs due to both explained and unexplained variation in pay when working in higher level nursing titles (nurse manager, APRN, or nurse educator/researcher). This means that fewer underrepresented minorities held these titles and when they did, their pay was less than White RNs in those titles. As indicated previously, two studies examining racial/ethnic bias in RN promotions (Hagey et al., 2001; Seago et al., 2005) found evidence of discriminatory practices that limited advancement opportunities for minority RNs. Health care employers must provide professional development programs that give RNs the knowledge and skills needed to advance to higher level positions, including training and mentoring that can support systematic career advancement. Further, in order for this to succeed, there must be a commitment to leadership development that targets underrepresented minorities.
Increasing the number of underrepresented minority RNs in leadership positions can reduce the likelihood of bias in career advancement decision making.

**Limitations**

Limitations of this research study include the following:

1. This study does not fully replicate the New York City study, as three variables included in the New York City study (years with current employer, hospital sponsorship, and whether or not the hospital was an academic health center) were not available for the proposed study. Failure to account for these variables may have contributed to differences in study findings.

2. The wage data obtained from the NSSRN and used in the analysis were self-reported and may be subject to bias.

3. The wage data reported was limited to the principal nursing position and does not include income from other nursing positions held.

4. This study detected the presence of racial/ethnic pay disparities for RNs and determined the extent to which these disparities were attributable to either differences in the possession of human capital and job characteristics or differences in the value of the same characteristic across different racial/ethnic groups. However, the study cannot identify the reasons for differences in the value of the same characteristic for different racial/ethnic groups.
Considerations for Future Research

The availability of data from the NSSRN containing detailed earnings information as well as many of the variables of interest that impact RN earnings provided an important opportunity to better understand the phenomenon of racial/ethnic disparities in the salaries of hospital RNs in the U.S. Clearly, this research has confirmed the presence of pay disparities for underrepresented minorities in registered nursing, and has identified some of the factors that may contribute to these disparities. Further research to study the presence of racial/ethnic pay disparities in registered nursing should be conducted. Research to date has found that underrepresented minority RNs earn less than other RNs and it is important to better understand the factors that contribute to these pay disparities in order to address them. It will be difficult to replicate this national study since the NSSRN was last conducted in 2008, and there are no immediate plans to conduct a comparable sample survey in the near term. There are no other national data sources on RNs that include pay data as well as the detailed demographic, educational, and employment data needed to study pay disparities in nursing.

One approach for future research on the topic of racial/ethnic pay disparities in registered nursing is to conduct smaller scale studies. For example, a comparative analysis of RNs employed in large, multiprovider health care delivery systems, such as Accountable Care Organizations, could be conducted. Such an approach could support an analysis of RN pay disparities across a number of different health care settings, including acute care, home care, and ambulatory care. As more of health care is delivered in community settings, such research could further understanding of the value of nursing workforce
diversity as providers face increasing pressure to more effectively manage chronic diseases in racially and ethnically diverse populations.

Another strategy would be to use data drawn from state-level re-registration surveys of RNs to analyze pay disparities. This is an optimal approach since re-registration surveys of health professionals tend to have relatively high response rates. However, the data needed for such an analysis may be more detailed than what is usually found in a re-registration survey and it may be challenging to incorporate all of the questions needed to fully analyze pay disparities and the factors that contribute to them. Further, not all states collect data on RNs at re-registration.

A third strategy would be to expand the questions asked in the ACS to include the variables needed for an analysis of racial/ethnic pay disparities in registered nursing. Currently, the ACS includes some, but not all of the variables needed for such an analysis. Additional variables could include title, years of nursing experience, years with current employer, more detailed educational information, and characteristics of employer. The inclusion of these variables could be of value in other areas of nursing research and could support a broader agenda of nursing workforce studies.

Clearly, more research is needed on this topic, covering larger samples of RNs in more settings with better data on income to more closely examine pay disparities and to better understand their sources.
Conclusion

The analysis presented in this paper indicates that 1) pay disparities exist between underrepresented minority hospital RNs, i.e. Black RNs and Hispanic RNs compared to Asian RNs and White RNs; 2) these disparities could not be fully explained by controlling for the relevant characteristics of these RNs and 3) characteristics of hospital RNs usually associated with higher earnings did not produce the same levels of reward in terms of earnings for Black and Hispanic RNs compared to White and Asian RNs. These findings are troubling, given the increased recognition that workforce diversity can improve population health and reduce health disparities. The findings also support the need for future research on this topic.

Efforts to eliminate pay disparities for underrepresented minorities in nursing require a multi-pronged strategy that involves collaborations between key stakeholders, including educators, health care providers, and nurse leaders, among others. It is critical to build pathways into registered nursing for underrepresented minorities that support successful completion of basic nursing education; to develop career ladders in nursing that start with an ADN and can go as far as advanced degrees in nursing; and to support career advancement in nursing.
References


Appendices

The 2008 National Sample Survey of Registered Nurses (NSSRN) is being conducted by the Health Resources and Services Administration of the U.S. Department of Health and Human Services and is the ninth cycle of the survey.

Instructions

How do I complete the survey electronically?
On your Web browser, log onto www.nssrn.org and type in your unique Access Code and PIN that is printed in the box below. If you complete the survey online, you do not need to return this paper questionnaire.

What if I received more than one questionnaire?
We may not have been able to eliminate all of the duplicates in our list of nurses. Please complete only one questionnaire but return any extra copies you receive, preferably in the same envelope as your completed survey. Please write "DUPLICATE" at the top of these blank surveys. By returning extra surveys, we can avoid unnecessary follow-up mailings to you.

What if I have questions about this survey?
If you have any questions about this survey or about how to complete it electronically, please call (toll-free) 1-888-371-9725, or send an e-mail to nssrn2008@westat.com.

Please correct any errors in the name/address information shown below to the right.

Corrections to First Name

Corrections to M.I.

Corrections to Last Name

Corrections to Number and Street

Corrections to City/Town

Corrections to State

Corrections to ZIP Code

If there are any corrections to the "State(s) Where Actively Licensed", please relist ALL of the States where you are actively licensed.

Corrections to the State(s) Where Actively Licensed

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0915-0276. The time required to complete this information collection is estimated to average 20 minutes per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the HRSA Reports Clearance Officer, 5600 Fishers Lane, Room 10-33, Rockville, Maryland, 20857.
Section A. Eligibility and Education

1. On March 10, 2008, were you actively licensed to practice as a registered nurse (RN) in any U.S. State or the District of Columbia (whether or not you were employed in nursing at that time)?
   - [ ] Yes → Go to Question 2
   - [ ] No → If No, you do not need to complete this questionnaire. Please mark “no” and return this questionnaire so we know you are not eligible.

2. In what U.S. State were you issued your first RN license?
   State:     Year:     

3. Which type of nursing degree or nursing credential qualified you for your first U.S. RN license? Mark one box only.
   - [ ] Diploma Program
   - [ ] Associate Degree
   - [ ] Bachelor's Degree
   - [ ] Master's Degree
   - [ ] Doctorate
   - [ ] Other
   Specify:     

4. In what month and year did you graduate from this nursing program?
   Month:     Year:     

5. In which U.S. State (including the District of Columbia), U.S. Territory, or foreign country was this program located?
   State:     Philippines
   Canada
   United Kingdom
   Nigeria
   Other
   Specify:     

6. Please indicate all post-high-school degrees you received before starting your initial RN educational program. Mark all that apply.
   - [ ] None → Go to Question 8
   - [ ] Associate Degree
   - [ ] Bachelor's Degree
   - [ ] Master's Degree
   - [ ] Doctorate
   - [ ] Other
   Specify:     

7. What was the field of study for your highest degree identified in Question 6? Mark one box only.
   - [ ] Health-related field
   - [ ] Non-health related field
   - [ ] Biological or Physical Science
   - [ ] Business or Management
   - [ ] Education
   - [ ] Liberal Arts, Social Science, or Humanities
   - [ ] Law
   - [ ] Computer Science
   - [ ] Social Work
   - [ ] Other non-health related field
   Specify:     

8. Have you ever been licensed as a licensed practical nurse (LPN) or licensed vocational nurse (LVN) in the U.S.?
   - [ ] Yes
   - [ ] No

Continued on next page
9. Were you ever employed in any of the following health-related jobs before completing your initial RN education? Mark all that apply.

- No health-related position before RN education
- Nursing Aide or Nursing Assistant
- Home health aide or assistant
- Licensed Practical or Vocational Nurse
- Emergency Medical Technician (EMT) or Paramedic
- Medical assistant
- Dental assistant
- Allied Health technician or technologist (radiological technician, laboratory technician)
- Manager in health care setting
- Clerk in health care setting
- Military medical corps
- Medical doctor
- Midwife
- Another type of health-related position

Specify

11a. Within the past year, have you received or provided emergency preparedness training, in any of the following areas? Mark all that apply.

- None ➔ Go to Question 12
- Chemical accident or attack
- Nuclear/radiological accident or attack
- Infectious disease epidemics
- Biological accident or attack
- Natural disaster
- Other public health emergencies

11b. Please specify the total number of hours spent in the above training(s) within the past year.

(enter 0 if none)

Hours of training received

Hours of training provided

11c. Thinking about the area in which you are best prepared for an emergency, are you...

- Very prepared
- Adequately prepared
- Somewhat prepared
- Not at all prepared

12. How well do you know the disaster/emergency plan at your place of employment?

- Full understanding
- Some understanding
- Little or no understanding
- No plan exists at my place of employment
- Do not have a place of employment

Continued on next page
13. Did you earn any additional academic degrees after graduating from your initial registered nurse education program that you described in Question 3? Do not include degrees you are currently working towards.

Yes → Please complete all columns of the following table for each degree you earned.
No → Go to Question 14 on page 5

<table>
<thead>
<tr>
<th>Type of Degree</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nursing Degrees</strong></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>a. Associate degree in nursing</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>b. Bachelor's degree in nursing</td>
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<td></td>
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<tr>
<td>c. Master's in nursing</td>
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<tr>
<td>d. Another Master's in nursing</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>e. Doctorate in nursing (PhD, ScD, DNS, ND, DNP)</td>
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<td><strong>Non-nursing Degrees</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>f. Associate degree in non-nursing field</td>
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<td></td>
<td></td>
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<tr>
<td>g. Bachelor's degree in non-nursing field</td>
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<tr>
<td>h. Master's in non-nursing field</td>
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<td>i. Another Master's in non-nursing field</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Doctorate in non-nursing field (PhD, JD, MD, EdD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Column B, enter the two-digit code for your Bachelor's, Master's, or Doctorate degree above.

**Primary Focus of Degree**

- 01 Clinical Practice
- 02 Administration/Business/Management
- 03 Education
- 04 Public health/community health
- 05 Law
- 06 Biological or Physical Sciences
- 07 Humanities, Liberal Arts, or Social Sciences
- 08 Informatics
- 09 Computer Science
- 10 Research
- 11 Social Work
- 12 Other health field
- 13 Other non-health field
14. Since graduating from the initial nursing program you described in Question 3, have you completed a formal educational program preparing you as a Nurse practitioner, Clinical nurse specialist, Nurse-midwife, or Nurse anesthetist?

<table>
<thead>
<tr>
<th>Information on preparation and credentials</th>
<th>A: Nurse Practitioner (NP)</th>
<th>B: Clinical Nurse Specialist (CNS)</th>
<th>C: Nurse-Midwife (NM)</th>
<th>D: Nurse Anesthetist (NA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14a. Did you receive preparation as a ...? Mark each column if yes.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>14b. What was the length of the program?</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>1. Less than 8 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. 8-12 months</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3. 13-36 months</td>
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<tr>
<td>4. 37 months or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14c. What was the highest credential you received in that program?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Certificate/Award</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Bachelor's degree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Master's degree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Post-Master's Certificate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Doctorate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14d. In what year did you receive this credential?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14e. Do you have certification from a national certifying organization for this specialty?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14f. Do you have licensure, certification, or recognition from a State Board of Nursing for this specialty?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14g. Which specialties were the focus of your NP, CNS, NM, or NA studies? Mark all that apply.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Acute Care
- Adult Health
- Anesthesia
- Cardiac Care
- Community Health
- Critical Care
- Family Care
- General Medical Surgical
- Geriatrics or Gerontology
- Home Health
- Maternal-Child Health
- Neonatal
- Nurse-Midwifery
- Obstetrics or Gynecology
- Occupational Health
- Oncology
- Palliative Care
- Pediatrics
- Psychiatric or Mental Health
- Rehabilitation
- School Health
- Women's Health
- Other
- Specify
15. On March 10, 2008, were you enrolled in a formal education program leading to an academic degree or certificate?  
☐ Yes  
☐ No → Go to Section B

16. Was this formal education program...? Mark one box only.  
☐ In nursing  
☐ In a non-nursing field to enhance your career/employment in nursing  
☐ In a non-nursing field to allow you to pursue career/employment opportunities outside of nursing  
☐ In an area of personal interest without regard to future employment

17a. Were you a full-time or part-time student?  
☐ Full-time student  
☐ Part-time student

17b. What percent of your coursework was distance-based (online or correspondence)?  
☐ 0%  
☐ 1-25%  
☐ 26-50%  
☐ 51-75%  
☐ 76-100%

18. What type of degree or certificate have you been working toward in this program? Mark one box only.  
☐ Associate Degree  
☐ Bachelor's Degree  
☐ Master's Degree  
☐ Doctorate  
☐ Post-Master's Certificate  
☐ Other Certificate

Section B. Principal Nursing Employment

19. On March 10, 2008, were you employed or self-employed in nursing? (Employed in nursing includes working for pay in nursing, even if on temporary leave.)  
☐ Yes  
☐ No → Go to Section D on page 10

For all the questions in this section (Questions 20 - 32), your principal nursing position is the nursing position, on March 10, 2008, in which you spent the largest share of your working hours.

20. Are you required to maintain an active RN license in order to hold your principal nursing position?  
☐ Yes  
☐ No

21. Where was the location of the principal nursing position you held on March 10, 2008? (If you are not employed in a fixed location, enter the location that best reflects where you practice.)  
City/Town:  
County:  
State (or country if not U.S.A.):  
ZIP+4 code:  
(if available)

22. In the principal nursing position you held on March 10, 2008, were you... Mark one box only.  
☐ An employee of the organization or facility where you were working?  
☐ Employed through an employment agency, but not as a traveling nurse?  
☐ Employed through an employment agency as a traveling nurse?  
☐ Self-employed, per diem, or working as-needed?
23. Which one of the following best describes the employment setting of the principal nursing position you held on March 10, 2008?  
Mark one box only.

<table>
<thead>
<tr>
<th>Hospital (including all types of care at a hospital location)</th>
<th>Academic Education Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community hospital or medical center, Non-Federal, short stay</td>
<td>Nursing aide and/or home health aide program</td>
</tr>
<tr>
<td>Inpatient unit</td>
<td>LPN/LVN program</td>
</tr>
<tr>
<td>Nursing home unit in hospital</td>
<td>Diploma program (RN)</td>
</tr>
<tr>
<td>Outpatient clinic/medical practice owned by a hospital</td>
<td>Associate degree RN program</td>
</tr>
<tr>
<td>Outpatient clinic/medical practice located at a hospital but not owned by the hospital</td>
<td>Bachelor's and/or higher degree RN program</td>
</tr>
<tr>
<td>Other administrative or functional area</td>
<td>Associate degree RN and LPN/LVN program</td>
</tr>
<tr>
<td>Specialty hospital, Non-Federal (children's, heart, burns, cancer)</td>
<td>Associate degree RN and BSN program</td>
</tr>
<tr>
<td>Inpatient unit</td>
<td>Other education program, not patient education</td>
</tr>
<tr>
<td>Outpatient clinic/medical practice owned by a hospital</td>
<td>Specify</td>
</tr>
<tr>
<td>Outpatient clinic/medical practice located at a hospital but not owned by the hospital</td>
<td></td>
</tr>
<tr>
<td>Other administrative or functional area</td>
<td></td>
</tr>
<tr>
<td>Long-term hospital, Non-psychiatric, Non-Federal</td>
<td></td>
</tr>
<tr>
<td>Inpatient unit</td>
<td></td>
</tr>
<tr>
<td>Nursing home unit in hospital</td>
<td></td>
</tr>
<tr>
<td>Other administrative or functional area</td>
<td></td>
</tr>
<tr>
<td>Psychiatric hospital, Non-Federal</td>
<td></td>
</tr>
<tr>
<td>Inpatient unit</td>
<td></td>
</tr>
<tr>
<td>Nursing home unit in hospital</td>
<td></td>
</tr>
<tr>
<td>Other administrative or functional area</td>
<td></td>
</tr>
<tr>
<td>Federal Government hospital (Military, VA, NIH or IHS-supported)</td>
<td></td>
</tr>
<tr>
<td>Inpatient unit</td>
<td></td>
</tr>
<tr>
<td>Nursing home unit in hospital</td>
<td></td>
</tr>
<tr>
<td>Outpatient clinic/medical practice located at a hospital but not owned by the hospital</td>
<td></td>
</tr>
<tr>
<td>Other administrative or functional area</td>
<td></td>
</tr>
<tr>
<td>Hospital unit in an institution (infirmary, correctional facility)</td>
<td></td>
</tr>
<tr>
<td>All types</td>
<td></td>
</tr>
<tr>
<td>Other Type of hospital</td>
<td></td>
</tr>
<tr>
<td>Inpatient unit</td>
<td></td>
</tr>
<tr>
<td>Nursing home unit in hospital</td>
<td></td>
</tr>
<tr>
<td>Outpatient clinic/medical practice owned by a hospital</td>
<td></td>
</tr>
<tr>
<td>Outpatient clinic/medical practice located at a hospital but not owned by the hospital</td>
<td></td>
</tr>
<tr>
<td>Other administrative or functional area</td>
<td></td>
</tr>
<tr>
<td>Specify</td>
<td></td>
</tr>
</tbody>
</table>

Nursing Home/Extended Care Facility

<table>
<thead>
<tr>
<th>Nursing home/extended care facility (not in a hospital)</th>
<th>Insurance Claims/Benefits/Utilization Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility for mentally retarded or developmentally disabled</td>
<td>Government insurer/benefits department: federal, state, or local</td>
</tr>
<tr>
<td>Residential care/assisted living facility</td>
<td>Insurance company or other private claims/benefits/utilization review organization</td>
</tr>
<tr>
<td>Other type of extended care facility</td>
<td>Other</td>
</tr>
<tr>
<td>Specify</td>
<td>Policy, planning, regulatory, or licensing agency</td>
</tr>
</tbody>
</table>

Home Health Setting

<table>
<thead>
<tr>
<th>Visiting nurse service (VNS/VNA)</th>
<th>Consulting organization or self-employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home health service unit (hospital-based)</td>
<td>Home-based self-employment</td>
</tr>
<tr>
<td>Home health agency (non-hospital based)</td>
<td>Telehealth, telenursing, or call center</td>
</tr>
<tr>
<td>Private duty in a home setting</td>
<td>Pharmaceutical/medical device/medical software</td>
</tr>
<tr>
<td>Hospice</td>
<td>Other</td>
</tr>
<tr>
<td>Other home health setting</td>
<td>Specify</td>
</tr>
</tbody>
</table>
24. Which one of the following best corresponds to the job title for the principal nursing position you held on March 10, 2008? Mark one box only.

- Staff nurse or direct care nurse
- Charge nurse or team leader
- First-line management (head nurse, floor supervisor)
- Middle management/administration (assistant director, house supervisor, associate dean, department head)
- Senior management/administration (CEO, vice president, nursing executive, dean)
- Certified Registered Nurse Anesthetist (CRNA)
- Clinical Nurse Specialist (CNS)
- Certified Nurse-Midwife (CNM)
- Nurse practitioner (NP)
- School nurse
- Public health nurse
- Community health nurse
- Patient educator
- Staff educator or instructor in clinical setting
- Staff development director
- Instructor/lecturer
- Professor
- Patient care coordinator, case manager, discharge planner
- Quality improvement nurse, utilization review nurse
- Infection control
- Advice/trauma nurse
- Informatics nurse
- Consultant
- Legal nurse
- Researcher
- Surveyor/auditor/regulator
- No position title
- Other

Specify

25. For the principal nursing position you held on March 10, 2008, did you work...?
Mark one box only.

- Full-time (including full-time for an academic year)
- Part-time (including working only part of the calendar or academic year)

26. For the principal position you held on March 10, 2008, how many months would you normally work per year?

months

27. For the principal nursing position you held on March 10, 2008, please provide information about the number of hours you work in a typical week.

- a. Number of hours worked, including all overtime and on-call hours, except on-call hours that were stand-by only

- b. Number of hours you stated above in "a" that were worked from on-call duty. Do not include stand-by hours

- c. Number of hours you stated above in "a" that were paid as overtime

- d. Number of paid overtime hours you stated above in "c" that were mandatory overtime

- e. Number of paid or unpaid on-call hours that were stand-by only

- f. Number of stand-by hours you stated above in "e" that were paid at an on-call stand-by rate

28. For the principal nursing position you held on March 10, 2008, please estimate the percentage of your time spent in the following activities during a usual workweek. Do not use decimal places.

- a. Patient care and charting

- b. Non-nursing tasks (housekeeping, locating supplies)

- c. Consultation with agencies and/or professionals

- d. Supervision and management

- e. Administration

- f. Research

- g. Teaching, precepting or orienting students or new hires (include preparation time)

- h. Other

The total should equal 100% 100%
29a. For the principal nursing position you held on March 10, 2008, in what level of care or type of work did you spend the majority of your time? Mark one or more boxes.

- General or specialty inpatient
- Critical/intensive care
- Step-down, transitional, progressive, telemetry
- Sub-acute care
- Emergency
- Urgent care
- Rehabilitation
- Long-term care/nursing home
- Surgery (including ambulatory, pre-operative, post-operative, post-anesthesia)
- Ambulatory care (including primary care, outpatient settings, except surgical)
- Ancillary care (radiology, laboratory)
- Home health
- Public health/community health
- Education
- Business, administration, review, case management
- Research
- Other
  Specify: 

29b. For the principal nursing position you held on March 10, 2008, with what patient population did you spend at least 50% of your patient care time? Mark only one box.

- No patient care ➔ Go to Question 30

- Adult
- Geriatric
- Pre-natal
- Newborn or neonatal
- Pediatric and/or Adolescent
- Multiple age groups (less than 50% time spent with any of the above)
  Specify: 

29c. For the principal nursing position you held on March 10, 2008, in what type of clinical specialty did you spend most of your patient care time? Mark one or more boxes.

- No patient care
- General medical surgical
- Critical care
- Cardiac or cardiovascular care
- Chronic care
- Dermatology
- Emergency or trauma care
- Gastrointestinal
- Gynecology (women’s health)
- Hospice
- Infectious/communicable disease
- Labor and delivery
- Neurological
- Obstetrics
- Occupational health
- Oncology
- Primary care
- Psychiatric or mental health (substance abuse and counseling)
- Pulmonary/respiratory
- Radiology (diagnostic or therapeutic)
- Renal/dialysis
- No specific area
- Other specialty for a majority of my time
  Specify: 

30. Please estimate your 2008 pre-tax annual earnings from your principal nursing position. Include overtime and bonuses, but exclude sign-on bonuses.

$  [ ]  [ ]  [ ]  [ ] .00 per year

31. Were you represented by a labor union or collective bargaining unit in the principal nursing position you held on March 10, 2008?

- Yes
- No

32a. Do you plan to leave or have you left the principal nursing position you held on March 10, 2008?

- Yes, have left or will leave within the next 12 months
- Yes, in 1 year to 3 years
- No plans to leave within next 3 years ➔ Go to Question 33 on page 10
- Undecided

32b. Do you plan to work in nursing after you leave that position?

- Yes
- No
- Unsure
**Section C. Secondary Employment in Nursing**

33. Aside from the principal nursing position you just described, did you hold any other positions in nursing for pay on March 10, 2008?

- [ ] Yes
- [ ] No → Go to Section E on page 11

34. In your other nursing position(s), are you...?

Mark all that apply.

- [ ] An employee of the organization or facility for which you are working?
- [ ] Employed through an employment agency, but not as a traveling nurse?
- [ ] Employed through an employment agency as a traveling nurse?
- [ ] Self-employed, per diem, or working as needed?

35. What type of work settings best describe where you work for your other nursing position(s)? Mark all that apply.

- [ ] Hospital
- [ ] Nursing home/Extended care facility
- [ ] Academic education program
- [ ] Home health setting
- [ ] Public or community health setting
- [ ] School health service
- [ ] Occupational health
- [ ] Ambulatory care setting
- [ ] Insurance claims/benefits
- [ ] Telehealth, telenursing or call center
- [ ] Other

Specify

36. In your additional nursing position(s), please indicate how much you work, and where the job is located:

<table>
<thead>
<tr>
<th>Weeks per year</th>
<th>Average hours per week, during weeks of work</th>
<th>Locations of where most of work is done (state, or country)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional job #1</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Additional job #2</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>All other jobs</td>
<td>[ ]</td>
<td>N/A</td>
</tr>
</tbody>
</table>

37. Please estimate your 2008 pre-tax annual earnings from all your other nursing position(s). Do not include earnings from your principal nursing position.

- [ ] $ [ ] [ ] [ ] [ ] .00 per year

All go to Section E on page 11

**Section D. Nurses Not Working in Nursing**

If you were working for pay in nursing on March 10, 2008, please go to Section E on page 11.

38. What are your intentions regarding paid work in registered nursing? Mark one box only.

- [ ] Have returned to nursing since March 10, 2008
  → Go to Section E on page 11
- [ ] Actively looking for work in nursing
- [ ] Plan to return to nursing in the future, not looking for work now
  → Go to Question 41
- [ ] No future intention to work for pay in nursing
  → Go to Question 42 on page 11
- [ ] Undecided at this time
  → Go to Question 42 on page 11

39. How long have you been actively looking for paid work in nursing?

- [ ] Months (if one or more)
- [ ] Less than one month

40. Are you looking for a position that is ...?

- [ ] Full-time
- [ ] Part-time
- [ ] Either
  → Go to Question 42 on page 11

41. When do you plan to return to paid work in nursing?

- [ ] Years (if one or more)
- [ ] Less than one year

-10-
42. How long has it been since you last were employed or self-employed as a registered nurse?

☐ Years (if one or more)
☐ Less than one year
☐ Never worked as a Registered Nurse

43. What are the primary reasons you are not working in a nursing position for pay? *Mark all that apply.*

Retired
Taking care of home and family
Burnout
Stressful work environment
Scheduling/inconvenient hours/too many hours
Physical demands of job
Disability
Illness
Inadequate staffing
Salaries too low/better pay elsewhere
Skills are out-of-date
Liability concerns
Lack of collaboration/communication between health care professionals
Inability to practice nursing on a professional level
Lack of advancement opportunities
Lack of good management or leadership
Career change
Difficult to find a nursing position
Travel
Volunteering in nursing
Went back to school
Other
Specify

46a. Please select from the list below the item that best describes the field of your principal position outside of nursing. *Mark one box only.*

☐ Computer services
☐ Consulting organization
☐ Emergency response (ambulance, fire, police)
☐ Financial, accounting, and insurance services
☐ Legal
☐ Education, elementary and secondary
☐ Food services
☐ Government
☐ Health-related services, outside nursing
☐ Pharmaceutical, biotechnology, or medical equipment
☐ Real estate
☐ Retail sales and services
☐ Other
Specify

46b. Which of the following best describes your job title for your principal position outside of nursing? *Mark one box only.*

☐ Business owner or proprietor
☐ Management
☐ Sales
☐ Instructor or professor
☐ Administrative or clerical support
☐ Consultant
☐ Other type of employee
Specify

47. How many months would you normally work per year in this principal position outside of nursing?

☐ months per year

48. What is the average number of hours you work per week in your principal position outside of nursing?

☐ hours per week

49. Please estimate your 2008, pre-tax annual earnings from your principal position outside of nursing.

$ ☐ ☐ ☐ .00 per year

Section E. Employment Outside Nursing

44. On March 10, 2008, were you employed for pay in an occupation other than nursing?

☐ Yes → Go to Section F on page 12

☐ No

45. On March 10, 2008, was this non-nursing employment with a health-related organization or in a health-related position?

☐ Yes
☐ No
Section F. Prior Nursing Employment

50. For this question count only the years you worked at least 50% of the calendar year in nursing. Since receiving your first U.S. RN license, how many years have you worked in nursing?

☐  Years (if one or more)
☐  Less than one year

51. Have you left work in nursing for one or more years since becoming an RN?

☐  Yes  ☐  Total years (if one or more)
☐  No  ☐  Have not worked in nursing more than one year

52. Were you employed in nursing one year ago (March 10, 2007)?

☐  Yes  ➔ Go to Section G on page 14
☐  No

53. For the principal nursing position you held on March 10, 2007, did you work...? Mark one box.

☐  Full-time (including full-time for an academic year)
☐  Part-time (including working only part of the calendar or academic year)

54. How would you describe the principal nursing position you held on March 10, 2007?

☐  Same position/same employer as principal nursing position on March 10, 2008  ➔ Go to Section G on page 14
☐  Different position/same employer as current one
☐  Different employer than current one

55. What was the location of the principal nursing position you held on March 10, 2007? (If you were not employed in a fixed location enter the location that best reflects where you practice.)

City/Town: ____________________________
County: ______________________________
State (or country if not U.S.A.): _________
ZIP+4 code: ___________ (if available)

56. Were any of the following the primary reason(s) for your employment change? Mark all that apply.

☐  Burnout
☐  Stressful work environment
☐  Interested in another position/job
☐  Lack of advancement opportunities
☐  Lack of collaboration/communication between health care professionals
☐  Lack of good management or leadership
☐  Career advancement/promotion
☐  Inadequate staffing
☐  Interpersonal differences with colleagues or supervisors
☐  Physical demands of job
☐  Opportunity to do the kind of nursing that I like
☐  Pay/benefits better
☐  Scheduling/inconvenient hours/too many hours
☐  Relocated to different geographic area
☐  Reorganization that shifted positions
☐  Laid off/downsizing of staff
☐  Sign-on bonus offered
☐  Personal/family
☐  Went back to school
☐  Retired
☐  Disability
☐  Illness
☐  Other

Specify: ________________________________
57. Which one of the following best describes the employment setting of the principal nursing position you held on March 10, 2007? Mark one box only.

**Hospital (including all types of care at a hospital location)**
- Community hospital or medical center, Non-Federal, short stay
  - Inpatient unit
  - Nursing home unit in hospital
  - Outpatient clinic/medical practice owned by a hospital
  - Outpatient clinic/medical practice located at a hospital but not owned by the hospital
  - Other administrative or functional area
- Specialty hospital, Non-Federal (children’s, heart, burns, cancer)
  - Inpatient unit
  - Outpatient clinic/medical practice owned by a hospital
  - Outpatient clinic/medical practice located at a hospital but not owned by the hospital
  - Other administrative or functional area
- Long-term hospital, Non-psychiatric, Non-Federal
  - Inpatient unit
  - Nursing home unit in hospital
  - Other administrative or functional area
- Psychiatric hospital, Non-Federal
  - Inpatient unit
  - Nursing home unit in hospital
  - Outpatient clinic/medical practice owned by a hospital
  - Outpatient clinic/medical practice located at a hospital but not owned by the hospital
  - Other administrative or functional area
- Federal Government hospital (Military, VA, NIH or IHS-supported)
  - Inpatient unit
  - Nursing home unit in hospital
  - Outpatient clinic/medical practice located at a hospital
  - Other administrative or functional area
- Hospital unit in an institution (infirmary, correctional facility)
  - All types
  - Other Type of hospital
    - Inpatient unit
    - Nursing home unit in hospital
    - Outpatient clinic/medical practice owned by a hospital
    - Outpatient clinic/medical practice located at a hospital but not owned by the hospital
    - Other administrative or functional area
  - Specify

**Nursing Home/Extended Care Facility**
- Nursing home/extended care facility (not in a hospital)
- Facility for mentally retarded or developmentally disabled
- Residential care/assisted living facility
- Other type of extended care facility
  - Specify

**Home Health Setting**
- Visiting nurse service (VNS/VNA)
- Home health service unit (hospital-based)
- Home health agency (non-hospital based)
- Private duty in a home setting
- Hospice
- Other home health setting

**Academic Education Program**
- Nursing aide and/or home health aide program
- LPN/LVN program
- Diploma program (RN)
- Associate degree RN program
- Bachelor's and/or higher degree RN program
- Associate degree RN and LPN/LVN program
- Associate degree RN and BSN program
- Other education program, not patient education
  - Specify

**Public or Community Health Setting**
- State Health or Mental Health Agency
- City or County Health Department
- Correctional Facility (non-hospital)
- Community mental-health organization or clinic
- Substance abuse center/clinic
- Other community setting
  - Specify

**School Health Service**
- School or school system (K-12)
- College or university
- Other school health setting

**Occupational Health (Employee Health Service)**
- Private industry
- Government occupational health services
- Other occupational health setting

**Ambulatory Care Setting, not located in a hospital**
- Medical/physician practice
- Nurse practice
- In-store or retail clinic
- Community health center
- Federal clinic (Military, VA, NIH or IHS-supported)
- Federally-supported clinic (not a community health center)
- Hospital-owned off-site clinic or surgery center
- Ambulatory surgical center, not hospital-owned
- Urgent care
- Dialysis center or clinic, not in a hospital
- Other ambulatory setting
  - Specify

**Insurance Claims/Benefits/Utilization Review**
- Government insurer/benefits department: federal, state, or local
- Insurance company or other private claims/benefits/utilization review organization

**Other**
- Policy, planning, regulatory, or licensing agency
- Consulting organization or self-employed
- Home-based self-employment
- Telehealth, telemessaging, or call center
- Pharmaceutical/medical device/medical software
- Other
  - Specify

-13-
Section G. General Information

58. How satisfied are you with your principal job, or most recent job if you are not now working? Mark one box only.

- Extremely satisfied
- Moderately satisfied
- Neither satisfied nor dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied
- Neither currently nor previously employed

59. Where do you currently reside? This information is critical for producing State estimates of the nursing workforce.

City/Town: ____________________________
County: _____________________________
State (or country if not U.S.A.): ______
ZIP+4 code: ____________________________ (if available)

60. Did you reside in the same city/town a year ago (March 10, 2007)?

☐ Yes → Go to Question 62
☐ No

61. Where did you reside a year ago? This information is critical for producing State estimates.

City/Town: ____________________________
County: _____________________________
State (or country if not U.S.A.): ______
ZIP+4 code: ____________________________ (if available)

62. What is your gender?

☐ Male
☐ Female

63. What is your year of birth?

☐ 19[ ]

64a. Are you of Latino or Hispanic ethnicity?

☐ Yes
☐ No

64b. Which one or more of the following would you use to describe your race? Please see page 16 for definitions. Mark all that apply.

- White
- Black or African American
- Asian
- American Indian or Alaska Native
- Native Hawaiian or Other Pacific Islander
- No other languages
- Spanish
- Filipino language (Tagalog, other Filipino dialect)
- Chinese language (Cantonese, Mandarin, other Chinese language)
- French
- German
- American Sign Language

65. What languages do you speak fluently, other than English? Mark all that apply.

☐ Other

66. Which best describes your current marital status?

☐ Married or in domestic partnership
☐ Widowed, divorced, separated
☐ Never married

67. Describe the children/parents/dependents who either live at home with you or for whom you provide a significant amount of care. Mark all that apply.

- No children/parents/dependents at home
- Child(ren) less than 6 years old at home
- Child(ren) 6 to 18 years old at home
- Other adults at home (i.e., parents or dependents)
- Others living elsewhere (i.e., children, parents or dependents)

68. Including employment earnings, investment earnings, and other income of all household members, what is your current, pre-tax annual total household income? Pick one appropriate category.

☐ $15,000 or less
☐ $15,001 to $25,000
☐ $25,001 to $35,000
☐ $35,001 to $50,000
☐ $50,001 to $75,000
☐ $75,001 to $100,000
☐ $100,001 to $150,000
☐ $150,001 to $200,000
☐ More than $200,000
Section H. License and Certification Detail

69. Please provide any other names under which you may have held a nursing license.

70a. Do you currently have any National nursing certifications?

- [ ] Yes
- [ ] No  ➔ Go to Section I on page 16

70b. Which of the following skill-based certifications do you currently have? Mark all that apply.

- [ ] No current skill-based certifications
- [ ] Life Support (BLS, ALS, BCLS, and others)
- [ ] Resuscitation (CPR, NRP, and others)
- [ ] Emergency Medicine/Nursing (EMT, ENPC, and others)
- [ ] Trauma Nursing (TNCC, ATCN, ATN, and others)
- [ ] Other
  - [ ] Specify

70c. Which of the following Nurse Practitioner, Clinical Nurse Specialist, Nurse Midwife, or Nurse Anesthetist certifications do you currently have? Mark all that apply.

- [ ] No current Nurse Practitioner, Clinical Nurse Specialist, Nurse Midwife, or Nurse Anesthetist certifications
- [ ] Other
  - [ ] Specify

70d. Other than those previously listed, what other National nursing certifications do you currently have? Specify name or acronym and organization below.

- [ ] No other current National nursing certifications  ➔ Go to Section I on page 16

<table>
<thead>
<tr>
<th>Certification Name:</th>
<th>Certifying Organization:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certification Name:</td>
<td>Certifying Organization:</td>
</tr>
<tr>
<td>Certification Name:</td>
<td>Certifying Organization:</td>
</tr>
</tbody>
</table>

Continued on next page

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103
Section 1. Contact Information/Comments

71. If we need to contact you about any of your responses, please provide your e-mail address and telephone number, as well as the best time of day to reach you.

E-mail address: ________________________________

Telephone No.:  [ ] Home  [ ] Work  [ ] Cell

Area Code

Telephone Number

Time of day/week best to contact you by phone: ________________________________

72. Do you have any recommendations for how this survey could be improved? Please print clearly.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Thank You.

Please return this survey and any duplicate surveys in the enclosed, postage-paid envelope.

Definitions for Question 64b

White: origins in any of the original peoples of Europe, the Middle East, or North Africa

Black or African American: origins in any of the black racial groups of Africa

Asian: origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam

American Indian or Alaska Native: origins in any original peoples of North, Central or South America and who maintains tribal affiliation or community attachment

Native Hawaiian or Other Pacific Islander: origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands

FOR OFFICE USE ONLY

104
Appendix B: 2006 CHWS New York Hospital RNs Survey Instrument
Center for Health Workforce Studies

SURVEY OF REGISTERED NURSES IN NEW YORK HOSPITALS

MARKING INSTRUCTIONS

- Use a No. 2 pencil or blue or black ink pen only.
- Do not use pens with ink that soaks through the paper.
- Make solid marks that fill the response completely.
- Make no stray marks on this form.
- Do not fold, tear, or mutilate this form.

CORRECT: ✔️
INCORRECT: ✗

RN Education

1. Please indicate all of the RN education programs you completed and give the year of completion.

- RN Diploma Program
- Associate Degree
- Baccalaureate Degree
- Master's Degree
- Doctoral Degree

2. (cont.) In which state or foreign country was your basic RN education located?

- New York
- Other U.S. State or District of Columbia
- Canada
- India
- Philippines
- United Kingdom
- Other

3. If you received your basic RN education in another country, did you need additional preparation to obtain a U.S. registered nursing license?

- No (skip to question 5)
- Yes

4. If yes, what additionally did you need?

- English as a second language
- Licensing Exam review course
- Other (please specify):

5. Immediately prior to starting your basic RN education, were you employed in a health occupation?

- No (skip to question 8)
- Yes
6. If yes, were you employed as a:
   - Laboratory Technician
   - Licensed Practical/Vocational Nurse
   - Nursing Aide
   - Occupational Therapy Aide/Assistant
   - Physical Therapy Aide/Assistant
   - Physician
   - Unit Clerk
   - Other (please specify):

7. If you were employed in health care immediately prior to obtaining your basic RN degree, do you still work for that same employer?
   - No, worked in a different hospital
   - No, worked in a nursing home
   - No, worked in a home health agency
   - No, worked in another health care setting
   - Yes

8. Did you work in health care while you were completing your basic RN education degree?
   - No (skip to question 11)
   - Yes

9. What type of assistance did you receive toward completing your nursing education?
   (Mark all that apply)
   - None (skip to question 11)
   - Paid release time
   - Tuition assistance
   - Living expenses
   - Tutoring/Remediation
   - Other (please specify):

10. If you received assistance toward your basic RN education degree, who provided the assistance?
    (Mark all that apply)
    - Employer
    - Union
    - Family
    - College or nursing program
    - Education Fund
    - Other (please specify):

11. What was the highest education level you completed before starting basic RN education?
    (Mark all that apply)
    - High School Graduate or GED
    - LPN Program
    - Associate Degree
    - Baccalaureate Degree
    - Master's Degree
    - Doctoral Degree
    - Other (please specify):

If you completed your nursing education in the United States, please skip to question 18.

Foreign Trained

12. Please indicate the reason(s) you chose to immigrate to the U.S. to work as a nurse:
    (Mark all that apply)
    - To increase personal safety
    - To experience a different way of living
    - To develop professionally
    - To earn more money
    - To send money home
    - To join family/friends in the U.S.
    - To enable my children to grow up in the U.S.
    - Other (please specify):

13. Did you use a recruitment agency to help you with your migration to the U.S.?
    - No (skip to question 15)
    - Yes

14. Which of the following did the recruitment agency help you with?
    (Mark all that apply)
    - Finding an employer
    - RN licensure exam preparation
    - Travel arrangements
    - Obtaining a visa
    - Technical skills to work in the U.S.
    - Language skills to work in the U.S.
    - Cultural competency to work in the U.S.
    - Finding a place to live
    - Other (please specify):
15. Did you enter nursing school with the sole purpose of emigrating to the U.S. to work as a nurse?
   - Yes
   - No

16. Since your arrival in the U.S., have you returned to your home country to work as an RN?
   - No
   - Yes

17. Please indicate any time you spent working as an RN in any countries (including your home country) that are outside the U.S.
   Include the name of the country, the year you started work, and the year you ended the work.

<table>
<thead>
<tr>
<th>Name of Country</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18. What best describes your nursing employment arrangement?
   - 1 employer in 1 facility
   - 1 employer in more than 1 facility (e.g., agency placement)
   - 2 employers
   - more than 2 employers

19. How many hours do you usually work in a day in your primary (the job where you work the most hours) nursing position?
   (E.g., 8 for 8 hours)

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>8</td>
</tr>
</tbody>
</table>

20. What shift do you usually work in your primary nursing position?
   - Days
   - Evenings
   - Nights
   - Rotate between different shifts
   - Other (please specify):

21. What days of the week do you usually work in your primary nursing position?
   - Weekdays
   - Weekends
   - Both

22. What is your employment status for your primary nursing position?
   - Full time (skip to question 24)
   - Part time

23. If you work part time, please indicate the reason:
   - Position is only available part time
   - Family or personal commitments limit available time to work
   - Full-time work is too demanding
   - Other (please specify):

24. Specify the average number of hours per week (not counting overtime) that you work in your primary nursing position:

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<tr>
<td>3</td>
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<tr>
<td>4</td>
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<td>5</td>
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<td>6</td>
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<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
</tbody>
</table>

25. Specify the average number of overtime hours per week that you work in your primary nursing position: (Indicate all overtime hours, regardless of whether they are mandatory or voluntary hours)

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<tr>
<td>3</td>
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<tr>
<td>4</td>
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<tr>
<td>5</td>
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<tr>
<td>6</td>
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<tr>
<td>7</td>
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<tr>
<td>8</td>
</tr>
</tbody>
</table>
26. What is the annual gross salary, excluding overtime, in your primary nursing position?

- ○ Less than $20,000
- ○ $20,000–$29,999
- ○ $30,000–$39,999
- ○ $40,000–$49,999
- ○ $50,000–$59,999
- ○ $60,000–$69,999
- ○ $70,000–$79,999
- ○ $80,000–$89,999
- ○ $90,000–$99,999
- ○ $100,000–$124,999
- ○ $125,000–$149,999
- ○ $150,000 or more

27. How many years have you been with your current primary employer?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9

28. Which of the following best describes the practice area of your current primary nursing position and your last nursing position?

(Select only one in each column.)

**Current**

- ○ Adult Critical Care, i.e., ICU, CCU
- ○ Operating Room
- ○ Post-Anesthesia Care Unit
- ○ Adult Medical and Surgical
- ○ Ambulatory or Outpatient Department
- ○ Emergency Department
- ○ Behavioral Health
- ○ Nursing Home Unit (long-term care)
- ○ Obstetrics
- ○ Oncology
- ○ Palliative Care/Hospice
- ○ Pediatric (general)
- ○ Pediatric Critical Care, i.e., NICU, ICU
- ○ Rehabilitation
- ○ Multiple Practice Areas
- ○ Other (please specify):

**Last**

- ○ Staff Nurse
- ○ Shift Supervisor
- ○ Nurse Manager
- ○ Clinical Nurse Specialist
- ○ Nurse Practitioner
- ○ Nurse Midwife
- ○ Nurse Educator
- ○ Researcher
- ○ Executive Staff
- ○ Other (please specify):

29. What best describes your current primary nursing position and your last nursing position?

(Select only one in each column.)

**Current**

- ○ Staff Nurse
- ○ Shift Supervisor
- ○ Nurse Manager
- ○ Clinical Nurse Specialist
- ○ Nurse Practitioner
- ○ Nurse Midwife
- ○ Nurse Educator
- ○ Researcher
- ○ Executive Staff
- ○ Other (please specify):

**Last**

- ○ Staff Nurse
- ○ Shift Supervisor
- ○ Nurse Manager
- ○ Clinical Nurse Specialist
- ○ Nurse Practitioner
- ○ Nurse Midwife
- ○ Nurse Educator
- ○ Researcher
- ○ Executive Staff
- ○ Other (please specify):

30. How many years have you been in your current primary nursing position?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9

31. How many years have you been working as an RN (excluding time taken off for education, childrearing, etc.)?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9

(If five or more years of experience, skip to question 45.)
### For Nurses with Less than 5 Years of Experience

**How often do you agree with the following statements?**

<table>
<thead>
<tr>
<th>Question</th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>My nursing education adequately prepared me for my job as a nurse.</td>
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<tr>
<td>The hospital provided me with an adequate orientation upon my initial employment at my current facility.</td>
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</tr>
<tr>
<td>The orientation program included working with preceptors on a consistent basis who helped me learn my roles and responsibilities.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>The orientation program included working with mentors on a consistent basis who helped me learn my roles and responsibilities.</td>
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<tr>
<td>The level of supervision I received during my orientation was appropriate for the roles and responsibilities I needed to learn.</td>
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<tr>
<td>Working with foreign-trained RNs has strengthened my understanding of the health care needs of culturally diverse patients.</td>
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<tr>
<td>I am treated as a colleague by my peers.</td>
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<tr>
<td>I am supported in my work by my supervisor.</td>
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</tr>
</tbody>
</table>

**40.** How long was your classroom and clinical orientation program?

<table>
<thead>
<tr>
<th>Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<tr>
<td>1</td>
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<td>2</td>
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<td>3</td>
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<td>4</td>
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<td>7</td>
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<td>8</td>
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<tr>
<td>9</td>
</tr>
</tbody>
</table>

**41.** In your opinion, the length of the hospital’s orientation program should be?

- [ ] Increased
- [ ] Not Changed
- [ ] Decreased

**42.** In your opinion, was the content of the hospital’s orientation appropriate?

- [ ] Yes
- [ ] No

**43.** How many preceptors worked with you during your orientation?

- [ ] None
- [ ] One
- [ ] Two
- [ ] Three or more

**44.** How many mentors worked with you during your orientation?

- [ ] None
- [ ] One
- [ ] Two
- [ ] Three or more

(Skip to question 52)
For Nurses with More than 5 Years of Experience

**How often do you agree with the following statements?**

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>45.</td>
<td>Nursing education today adequately prepares RNs to work in my hospital.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46.</td>
<td>My hospital’s orientation program provides new RNs with the training they need to assume the roles and responsibilities of staff RNs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47.</td>
<td>My hospital effectively uses preceptors as part of the orientation program for new RNs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48.</td>
<td>My hospital effectively uses mentors as part of the orientation program for new RNs.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>49.</td>
<td>The time I spend training new RNs assigned to my unit detracts from my ability to give quality patient care.</td>
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</tr>
<tr>
<td>50.</td>
<td>Working with foreign-trained RNs has strengthened my understanding of the health care needs of culturally diverse patients.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51.</td>
<td>I have been adequately prepared to serve as a preceptor at my facility.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**SATISFACTION/TRAINING NEEDS/FUTURE PLAN**

**52. How often do you agree with the following statements?**

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>I am satisfied with my work schedule.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>I am satisfied with my pay.</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>I have adequate retirement benefits.</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>d.</td>
<td>I have adequate health care benefits.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>I have adequate paid time off.</td>
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</tr>
<tr>
<td>f.</td>
<td>I am treated as a valued employee by my employer.</td>
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<tr>
<td>g.</td>
<td>My employer provides opportunities for continuing education.</td>
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<tr>
<td>h.</td>
<td>My employer provides opportunities for advancement.</td>
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<tr>
<td>i.</td>
<td>On most days, I have more work than I can manage.</td>
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</tr>
<tr>
<td>j.</td>
<td>I am mandated to work overtime hours.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>k.</td>
<td>The amount of paperwork I am required to do interferes with the time I need to give quality patient care.</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>l.</td>
<td>The quality of my work life is better than it was a year ago.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>m.</td>
<td>I go home feeling satisfied that I provided quality patient care.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>n.</td>
<td>I am concerned about the potential of being a victim of physical violence while at work.</td>
<td></td>
<td></td>
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<tr>
<td>o.</td>
<td>I am concerned about the risk of injury or infection while at work.</td>
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</tr>
</tbody>
</table>
Please indicate the extent to which the following have changed in the past year on the unit(s) where you usually work:

<table>
<thead>
<tr>
<th>Item</th>
<th>Decreased</th>
<th>No Change</th>
<th>Increased</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Patient turnover</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Patient acuity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Adverse patient events (med errors, falls)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Number of patients per nurse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. RN turnover</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Mandatory overtime</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Voluntary overtime</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Number of foreign-trained nurses</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>i. Use of nurses from temporary agencies</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>j. Need for second language skills</td>
<td></td>
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<td></td>
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<tr>
<td>k. Adequacy of staffing</td>
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</tbody>
</table>

Please describe your experience with computer technology for the following tasks in your day-to-day work:

<table>
<thead>
<tr>
<th>Task</th>
<th>I use computers in my day-to-day work for...</th>
<th>I have been adequately trained in using computers for...</th>
<th>Use of computer technology for this task helps me provide better quality care.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charting</td>
<td>Yes/No</td>
<td>Agree/Disagree</td>
<td>Agree/Disagree</td>
</tr>
<tr>
<td>Clinical monitoring</td>
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<tr>
<td>Physician orders</td>
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<tr>
<td>Scheduling</td>
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<tr>
<td>Obtaining test/lab results</td>
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<tr>
<td>Clinical decision support</td>
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<tr>
<td>Continuing education</td>
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<tr>
<td>E-mail for communication</td>
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</tbody>
</table>

Please indicate your emergency preparedness training in the following areas:

<table>
<thead>
<tr>
<th>Area</th>
<th>I have been trained in emergency preparedness for...</th>
<th>I feel I am adequately prepared to handle...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical attacks/events</td>
<td>Yes/No</td>
<td>Agree/Disagree</td>
</tr>
<tr>
<td>Biological attacks/events</td>
<td>Yes/No</td>
<td>Agree/Disagree</td>
</tr>
<tr>
<td>Radiologic attacks/events</td>
<td>Yes/No</td>
<td>Agree/Disagree</td>
</tr>
<tr>
<td>Nuclear attacks/events</td>
<td>Yes/No</td>
<td>Agree/Disagree</td>
</tr>
<tr>
<td>Explosive attacks/events</td>
<td>Yes/No</td>
<td>Agree/Disagree</td>
</tr>
<tr>
<td>Infectious disease outbreaks</td>
<td>Yes/No</td>
<td>Agree/Disagree</td>
</tr>
<tr>
<td>Natural disasters</td>
<td>Yes/No</td>
<td>Agree/Disagree</td>
</tr>
<tr>
<td>Personal and family emergency preparedness</td>
<td>Yes/No</td>
<td>Agree/Disagree</td>
</tr>
</tbody>
</table>
56. What additional training do you need? (Mark all that apply)

- Case management
- Clinical training (new or maintaining clinical skills)
- Communication/interpersonal skills
- Computer skills
- Conflict resolution training
- Customer service training
- Infectious disease outbreaks (e.g., avian flu, West Nile Virus)
- Interdisciplinary team building
- Man-made disasters (e.g., terrorist attacks, nuclear accidents)
- Management/Supervisory/Delegation
- Mentoring training
- Natural disasters
- Personal and family emergency preparedness
- Preceptor training
- Use of new equipment/technologies in place at the hospital
- Work with a qualified RN to learn new skills
- Other (please specify):

57. Describe your planned or current involvement or interest in continuing your education.

- None (skip to question 59)
- I am currently attending school for an advanced degree in nursing (skip to question 59)
- I am interested in advanced education in nursing (skip to question 59)
- Other (please specify):

58. If you are currently pursuing or are interested in pursuing advanced education in nursing, which degree(s) are of interest to you. (Mark all that apply)

- Bachelor’s Degree
- Master’s in nursing:
  - Nurse Practitioner
  - Clinical Specialty Training
  - Nursing Education
  - Administration
  - Informatics
  - Other (please specify):
- Post-master’s certificate in nursing
- Doctorate in nursing

59. What barriers do you face in pursuing advanced education in nursing? (Mark all that apply)

- None
- Courses conflict with work schedule
- Prerequisite requirements
- Application process
- Proximity to a nursing education program
- Need for financial aid
- Family responsibilities
- Other (please specify):

60. When do you expect to leave your current nursing position?

- Within six months
- Between six months and one year
- After one year but before three years
- No plans to leave within the next three years

61. What do you plan to do after you leave your current nursing position? (Mark all that apply)

- Take a different nursing position (specify the type of position)
- Take a similar nursing position, but with a different employer
- Return to school and continue my education
- Take a job outside of nursing
- Take time off for family obligations
- Leave the state
- Leave the country
- Retire
- Other (please specify):
I could be encouraged to remain in my current nursing position longer for:

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>More desirable shift</td>
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<td>b.</td>
<td>More flexible scheduling</td>
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<td>c.</td>
<td>Higher salary</td>
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<td>d.</td>
<td>Better benefits</td>
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<td>e.</td>
<td>More recognition from management</td>
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<td>f.</td>
<td>More autonomy</td>
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<td>g.</td>
<td>More opportunities for education/training</td>
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<td>h.</td>
<td>Release time for educational activities</td>
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<td>i.</td>
<td>More opportunity for advancement/promotion</td>
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<td>j.</td>
<td>Better staffing</td>
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<td>k.</td>
<td>Increased availability of clinical educators on my unit</td>
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<td>l.</td>
<td>Less physically demanding work</td>
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<td>m.</td>
<td>More attention by my employer to issues of personal safety</td>
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<td>n.</td>
<td>The opportunity to precept new RNs</td>
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<td>o.</td>
<td>The opportunity to mentor new RNs</td>
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<td>p.</td>
<td>Joint appointment as adjunct faculty at a local nursing education program</td>
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</table>

More supportive and collegial working relationships with:

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>q.</td>
<td>Nurse supervisor</td>
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<td>r.</td>
<td>Physicians</td>
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<td>s.</td>
<td>Unit support staff (ward clerks, transporters, etc.)</td>
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<td>t.</td>
<td>Nurse leadership</td>
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<td>u.</td>
<td>Staff development</td>
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<td>v.</td>
<td>All other hospital departments</td>
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</tbody>
</table>
Demographic Information

63. Gender:
- Male
- Female

64. Year of Birth: [19]

65. Race:
- White
- Black/African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Other

66. Are you Hispanic or Latino in origin?
- No
- Yes

67. What is the primary language spoken at home?
- English
- Spanish
- Other (please specify):

68. What is your country of birth?
- United States (skip to question 70)
- Other (please specify):

69. If you were born outside of the U.S., when did you first arrive in the U.S.?

70. What is your current marital/partnership status?
- Single/Never Married
- Married/Partnered
- Divorced/Separated/Widowed

71. Do you have children living at home with you?
- No
- Yes, all younger than six years old
- Yes, all six years old or older
- Yes, some younger than six and some six or older

72. Are you a primary care giver for a dependent adult?
- No
- Yes
The Center is working with other nurse researchers in providing additional insights on nurses and nursing issues. If you would like to participate in this follow-up study, please use the additional sheet to provide us with your name, address, telephone number, e-mail address, and the state or country where you received your initial RN degree.

Thank you for your participation in this survey.