



# Nurse Meets Patient

## A Comparison of the Nurse and General Populations in Florida

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### **Introduction and Background**

The Florida Center for Nursing acknowledges the need for a qualified nursing workforce that is both adequate in size to meet the needs of Florida's residents *and* adequate in racial/ethnic diversity to match general population characteristics. The need for a nurse workforce that is adequate in size is obvious, but perhaps less obvious is the need for a racially and ethnically diverse nurse workforce. Diversity brings two important benefits for patient care: cultural competence and communicative competence.

In this report, we compare the licensed nurse and general populations in terms of both diversity and size using supply-side data on Florida's nurse population and demand-side data on Florida's residents and health care facilities. We begin by comparing the racial/ethnic distribution of the licensed nurse population with that of the general population. Because Florida is a large, densely populated state with regional differences in the racial/ethnic makeup of its population, we assess this match at the state level and also in each of six regions of the state. We then compare the size of the nurse population in each region to several indicators of health care demand, including general population size and the number of hospital or skilled nursing facility beds in the region. We conclude with a discussion of study limitations and regional recruitment needs.

This report is not an assessment of the extent to which Florida's nurses have the skills demanded by employers. Available data on the nurse population do not describe the education, experience, or other qualities of nurses in Florida. The report is also not intended as a statement about the match between nursing labor supply and demand in the state. Instead, we take a comparative approach by analyzing regional differences within the state. In this way, we identify areas of the state where general and targeted recruitment of nurses appears to be most needed.

### **Data Sources and Methods**

Florida Board of Nursing (FBON) licensure data current as of January 2007 were used to describe the racial/ethnic makeup of the licensed nurse population and to place licensed nurses into one of six regions of the state. These regions are shown in Appendix A. Only Registered Nurses (RNs), Advanced Registered Nurse Practitioners (ARNPs), and Licensed Practical Nurses (LPNs) with an active license and a license status rendering them eligible to practice nursing in the state were included. Where possible, nurses were placed according to the practice location they provided to FBON. More detail on data cleaning and geographic placement of nurses can be found in the FCN report titled "Analysis of Nurse Licensure Data in Florida: Methods and Statewide Results."<sup>1</sup> It is important to note that FBON data do not indicate whether nurses are working, how much they work, whether they work in or outside of nursing, or in what setting. As such, this report assesses the entire licensed nurse *population*, not the subset of employed nurses (the nursing *workforce*).

Data from the Florida legislature's Office of Economic and Demographic Research (EDR) were used to measure the size, age, and race/ethnicity of the general population in Florida<sup>2</sup>. Because

county-level population estimates are not finalized until a year or more after the date of interest, population projections for 2007 were used to measure population size. County-level data were aggregated to the regional level for comparison with nurse licensure data. It should be noted that estimates of the general population include not only U.S. citizens but also persons from other countries who reside in Florida.

EDR also provides estimated county population by age, race, Hispanic origin, and gender. The most current estimates are for April, 2005. To facilitate comparisons with the more recent nurse licensure data, the estimated counts were converted to percentages. This procedure assumes that the proportions – not actual counts – have remained stable over the year and a half gap between April 2005 estimates and the January 2007 nurse licensure data. The EDR classifies all persons as White, Black, or Other. In addition to race, EDR estimates the count of persons reporting Hispanic ethnicity within each racial category. To allow comparison with licensure data, persons of Hispanic origin were classified as Hispanic and removed from the White, Black or Other categories. The FBON nurse licensure data classifies the race/ethnicity of nurses as White, Black, Hispanic, Asian, Native American and Other. To allow comparison with EDR population data, the FBON “Other” category was broadened to include nurses self-identifying as Asian and Native American.

To understand the nurse population size relative to the demand for nurses, the number of nurses was compared against the number of licensed hospital and skilled nursing facility beds. Although nurses work in a variety of settings, Florida’s Agency for Workforce Innovation<sup>3</sup> reports that in 2006 over half of Florida RNs (54%) worked in hospitals. The largest proportion of working LPNs (24%) was found in skilled nursing facilities. For this reason, we used the number of beds to construct a measure of licensed RNs per 100 hospital beds and licensed LPNs per 100 skilled nursing facility beds.

Counts of hospital and skilled nursing facility (SNF) beds were obtained from the Florida Agency for Health Care Administration (AHCA) database of licensed health care facilities.<sup>4</sup> Each facility’s record contains both the county in which the facility is located and the number of beds at each facility. The number of beds was then aggregated from the county level to the regional level.

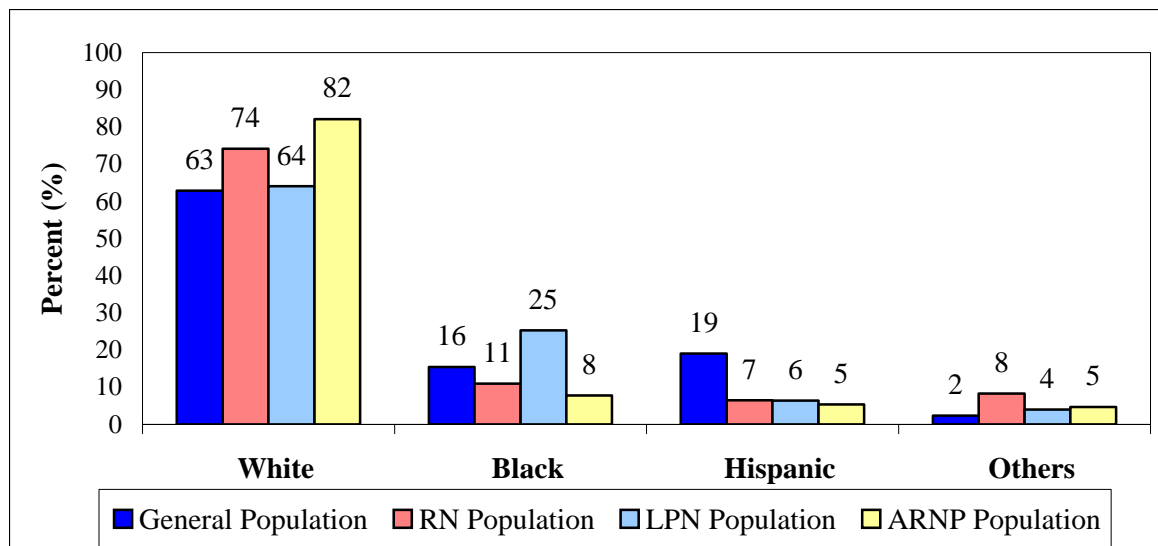
## **Findings**

### Racial and Ethnic Compositions of the Nurse Population and General Population

Figure 1 below provides a comparison of the general population and licensed nurse population, by type of nurse, at the state level. In general, the level of diversity in the nurse population does not match the level of diversity in the general population. Non-Hispanic Whites are over-represented within the licensed nurse population, while Hispanics (any race) and Blacks are under-represented. The sole exception to this trend occurs for LPNs, a group that outpaces the general population substantially in the proportion reporting Black race.

Discrepancies between nurse population and general population are most notable for Hispanics. While about 19 percent of the population reports Hispanic ethnicity, fewer than seven percent of

licensed nurses do so. All nurse types are over-represented within the “Other” category, a finding that is likely caused by foreign recruitment of Asian nurses from the Philippines.



**Figure 1. Race and Ethnicity in the General and Nurse Populations, by Nurse Type**

When examined at the regional level, racial/ethnic discrepancies are much larger, and the type of discrepancy varies depending on the region of interest. Table 1 presents a regional comparison of the general population to the RN population. Hispanics are generally under-represented among RNs in southern regions, while Blacks are under-represented among RNs in northern regions. The Central region of Florida is a kind of tipping point at which the racial/ethnic makeup of the minority population begins to shift from Hispanic to Black. In this region, both Hispanics and Blacks are slightly under-represented among RNs. The extent of the discrepancy is most notable in the South and in northern regions. In the South, comprised of Miami-Dade and Monroe counties, Hispanics make up almost 60 percent of the population but only 30 percent of RNs. In the North and Northwest, Blacks comprise around 20 percent of the population but less than 10 percent of RNs.

**Table 1. Race/Ethnicity: Regional Differences in the RN Population**

	South		Southeast		Southwest		Central		North		Northwest	
	% RN	% Gen Pop	% RN	% Gen Pop	% RN	% Gen Pop	% RN	% Gen Pop	% RN	% Gen Pop	% RN	% Gen Pop
<b>White</b>	33.4	19.2	64.6	61.9	85.5	74.7	78.5	70.1	80.0	70.0	88.1	73.9
<b>Black</b>	21.9	19.5	19.3	18.9	5.3	9.9	8.6	12.6	8.8	21.8	6.8	19.4
<b>Hispanic</b>	29.6	59.4	5.4	16.6	3.6	13.3	5.0	14.5	2.5	5.2	1.5	3.8
<b>Others</b>	15.2	1.8	10.7	2.6	5.6	2.1	7.9	2.8	8.8	3.0	3.7	2.9

Table 2 presents results for ARNPs. Racial/ethnic discrepancies between ARNPs and the general population follow a similar pattern to the one reported for RNs, with Hispanics under-represented in southern regions and Blacks under-represented in northern regions. Because

ARNPs are more likely to be White than any other nurse type, the proportionate sizes of the discrepancies are even larger among ARNPs.

**Table 2. Race/Ethnicity: Regional Differences in the ARNP Population**

	South		Southeast		Southwest		Central		North		Northwest	
	% ARNP	% Gen Pop	% ARNP	% Gen Pop	% ARNP	% Gen Pop	% ARNP	% Gen Pop	% ARNP	% Gen Pop	% ARNP	% Gen Pop
<b>White</b>	48.8	19.2	75.4	61.9	89.9	74.7	86.8	70.1	90.1	70.0	91.3	73.9
<b>Black</b>	19.9	19.5	13.9	18.9	3.5	9.9	5.4	12.6	4.4	21.8	4.4	19.4
<b>Hispanic</b>	21.0	59.4	4.6	16.6	3.1	13.3	4.1	14.5	2.3	5.2	1.5	3.8
<b>Others</b>	10.4	1.8	6.1	2.6	3.5	2.1	3.7	2.8	3.2	3.0	2.9	2.9

Results for LPNs are reported in Table 3. LPNs differ substantially in racial/ethnic composition from RNs and ARNPs, with nearly one-quarter identifying as Black and only 64 percent identifying as non-Hispanic White. At least partially as a result, the proportion of Black LPNs exceeds the proportion identifying as Black in the general population in every region except the Northwest. Hispanics, however, are under-represented in every region.

**Table 3. Race/Ethnicity: Regional Differences in the LPN Population**

	South		Southeast		Southwest		Central		North		Northwest	
	% LPN	% Gen Pop	% LPN	% Gen Pop	% LPN	% Gen Pop	% LPN	% Gen Pop	% LPN	% Gen Pop	% LPN	% Gen Pop
<b>White</b>	15.4	19.2	46.2	61.9	76.9	74.7	71.6	70.1	66.8	70.0	77.8	73.9
<b>Black</b>	50.0	19.5	44.3	18.9	14.9	9.9	18.9	12.6	25.9	21.8	17.8	19.4
<b>Hispanic</b>	29.1	59.4	4.6	16.6	4.9	13.3	5.8	14.5	2.5	5.2	1.2	3.8
<b>Others</b>	5.6	1.8	5.0	2.6	3.3	2.1	3.8	2.8	4.7	3.0	3.2	2.9

In summary, comparison of general population demographics to nurse population demographics reveals striking regional variation in both populations across the state of Florida. The results underscore the need for attention to regional differences in nurse workforce analysis and in workforce planning. State-level results indicated that racial and ethnic diversity in the licensed nurse population did not match diversity in the general population, but the results also camouflaged the size and nature of the discrepancies experienced within each region of Florida.

Analysis of Regional Differences in Supply Adequacy

To better understand how the supply of nurses matches demand across the regions of Florida, we compared the number of licensed nurses to the size of the population and the number of beds in hospitals and nursing homes. We also included measures of population age as rough indicators of increased demand for nursing services in each region. These results are presented in Table 4. It is important to emphasize again that our measures are based on the licensed nurse population, not the nurse workforce. We do not know whether or not each nurse is working or in what setting. Neither do we know where working nurses are employed or their employment status (full-time vs. part-time). For that reason, *the results presented in Table 4 cannot be used to definitively*

judge the adequacy of the workforce. However, they can be used to understand which regions of the state appear to suffer more or less from an inadequate supply of nurses.

**Table 4. Statewide and Regional Measures of Supply Adequacy**

	# RNs per 100,000	# RNs per 100 Hosp. Beds	# LPNs per 100,000	# LPNs per 100 SNF Beds	# ARNPs per 100,000	Resident Population Age 65+
South	662	173	186	58	47	13.5%
Southeast	946	284	289	78	52	18.7%
Southwest	949	293	375	73	63	20.9%
Central	902	365	292	65	45	16.9%
North	1036	287	284	59	71	11.7%
Northwest	905	194	394	82	70	12.6%
<b>Statewide</b>	<b>906</b>	<b>272</b>	<b>307</b>	<b>70</b>	<b>56</b>	<b>17.1%</b>

In 2007, there were 906 licensed RNs, 307 LPNs, and 56 ARNPs for every 100,000 Floridians. The difference between licensed nurses and working nurses becomes clearer when these results are compared with those from the 2004 National Sample Survey of Registered Nurses<sup>5</sup>. Sample survey results for Florida indicated that there were 763 employed RNs in Florida’s nursing workforce for every 100,000 members of the population. The larger numbers reported here include nurses who are not working or who are working outside of nursing.

Regional differences in the number of nurses per capita again confirm the importance of regional workforce analysis and planning. In the South, there were far fewer licensed nurses per 100,000 members of the general population when compared with statewide figures – nearly 250 fewer RNs and 100 fewer LPNs. In most other regions, the number of nurses per capita is similar to or greater than the statewide figures. One notable exception is the very low number of ARNPs per capita in the Central region.

Population size is only one determinant of the need for nurses. The actual amount of healthcare demanded by the population, and the settings in which it is delivered, may vary depending on population demographics. Population age is one indicator of healthcare demand, since an older population demands more healthcare. Florida has a larger proportion of persons aged 65 or older (17.1%) than does the nation as a whole, but this population is distributed unevenly across the state. The largest concentrations of elderly Floridians can be found in the Southeast and Southwest, where roughly one-fifth of the population is over the age of 65. In these areas, the number of nurses per capita typically exceeds the statewide average – a desirable finding given the likelihood of higher healthcare demand.

Alternative measures of demand, such as the number of hospital and nursing home beds which must be staffed, are better indicators of healthcare utilization than is population size or composition, since they indicate actual opportunities for nurse employment in practice settings. Statewide, there were 272 licensed RNs per 100 licensed hospital beds and 70 LPNs per 100 licensed skilled nursing facility beds. The South again stands out as having significantly fewer licensed nurses per 100 licensed beds when compared with statewide figures. In Miami-Dade and Monroe counties, there are nearly 100 fewer RNs for each 100 hospital beds. In the North,

there are 11 fewer LPNs per 100 nursing home beds than is true statewide. In the Northwest, there are 78 fewer RNs per 100 hospital beds.

## Discussion

Analysis of racial/ethnic diversity in the licensed nurse population reveals that efforts are needed to recruit and retain Hispanic and Black nurses, if the goal of a diverse workforce is to be reached. However, these efforts are not needed uniformly across the state. The substantial regional differences in general population demographics mean that the nursing needs across the state are also different. In the northern regions of the state, recruitment of Blacks into nursing is needed to better match the general population. In the southern regions of the state, recruitment of Hispanics is needed. While both efforts would strengthen the cultural competence of the nursing workforce, recruitment of Hispanics is particularly important given the language barriers faced by many Hispanic residents.

Language barriers in healthcare delivery can lead to adverse events, increases in cost, and decreases in quality and access to care. They have been linked with increased use of expensive diagnostic tests and emergency services, decreased use of primary care providers, and failure of patients to follow up when reassessment is needed.<sup>6</sup> In nursing care, language barriers could lead to complications in neurological assessments such as assessing the presence/absence of slurred speech, ethical concerns related to obtaining informed consent for invasive procedures, and concerns about patient understanding and adherence to medication schedules, plans for care, and discharge instructions.

Not surprisingly, South Florida – comprised of Miami-Dade and Monroe counties – was identified as having the largest need for additional Hispanic nurses. Of even greater concern, however, is the overall nurse recruitment needed in South Florida. The South was also identified as having far fewer nurses per capita and per licensed beds than other regions. This combination – inadequate nurse supply and inadequate numbers of Hispanic nurses – is potentially dangerous for South Florida's patient population.

Unfortunately, data limitations prevent a more thorough and definitive assessment of supply adequacy in this report. FBON licensure data do not allow determination of the number of employed nurses, the number working in nursing, and the settings in which nurses work. These data elements would greatly enhance our understanding of the nurse supply. We also lack more definitive information on the demand for nursing personnel. While population size and composition are important indicators of health care need, demand for labor is determined by nurse employers – hospitals, nursing homes, and many other types of health care facilities. The number of beds licensed by employers may be a driver of their demand for labor, but the measure does not account for differences in staffing levels that may alter demand. The Florida Center for Nursing will continue to pursue collecting the data needed for a more refined assessment of supply adequacy and diversity.

## References

1. Florida Center for Nursing. (2007). Analysis of Nurse Licensure Data in Florida: Methods and Statewide Results. Orlando, FL: author.
2. Population statistics can be obtained from the EDR website at:  
<http://edr.state.fl.us/population.htm>
3. Florida Agency for Workforce Innovation employment statistics were produced by request for the Florida Center for Nursing in September 2006.
4. A complete listing of licensed health care facilities can be downloaded from the Agency for Health Care Administration website at:  
[http://www.fdhc.state.fl.us/MCHQ/Long\\_Term\\_Care/FDAU/Reports.shtml](http://www.fdhc.state.fl.us/MCHQ/Long_Term_Care/FDAU/Reports.shtml)
5. Health Resources and Services Administration. (2006). The Registered Nurse Population: Findings from the 2004 National Sample Survey of Registered Nurses. Washington, D.C.: U.S. Department of Health and Human Services.
6. Hasnain-Wynia, R., Yonek, J., Pierce, D., Kang, R., & Greising, C. H. (2006). Hospital Language Services for Patients with Limited English Proficiency: Results from a National Survey. Chicago, IL: Health Research and Educational Trust.

### Appendix A. Map of FCN Regions, Workforce Board Regions and Counties in Florida

