



Estimation of the RN Workforce in Florida as of January 2009

April 2009



Addressing Nurse Workforce Issues for the Health of Florida

www.FLCenterForNursing.org

Estimation of the RN Workforce in Florida as of January 2009

Executive Summary

This report presents the Center's first estimates of the Registered Nurse (RN) and Advanced Registered Nurse Practitioner (ARNP) workforces in terms of both employed nurses and nursing FTEs. We used data from the 2008 Nurse Workforce Survey, which reached nearly two-thirds of the total population of RNs and ARNPs, along with licensure data from January 2009 to construct the estimates.

Selected highlights of our results include:

- There are more than 190,000 RNs and ARNPs with an active license and Florida address, but we estimate that only 161,778 (85 percent) of them are presently working in nursing.
- RNs provide an estimated 134,600 FTEs and ARNPs provide an estimated 9,900 FTEs, both with an average FTE value of 0.89.
- Not surprisingly, most RN and ARNP FTEs (89,661) are in hospitals, followed by home health care (10,193) and ambulatory care (7,392). All other employment settings employ fewer than 7,000 FTEs or fewer than 5 percent of the total FTEs each.
- RNs age 51 and over contribute almost 40 percent of all RN FTEs. Average FTEs contributed by RNs decrease with age, from 0.92 for RNs age 20-30 years to 0.77 for RNs older than 60 years. There are not enough younger RNs to replace those who will be retiring, hence succession planning and retention of older RNs in the workforce should be prioritized.
- Although women comprise almost 90 percent of the RN FTEs, they work fewer hours than men as evidenced by women's lower average FTE value (0.89 for women, 0.95 for men).
- Most RN FTEs (84.4%) are in positions where nurses provide direct care. These nurses have a similar average FTE as do nurses working in jobs where they do not provide direct care.
- Employed RNs per 100,000 population and FTEs per 100 hospital beds are lowest in the South region. The Northwest region also has far fewer RNs per 100 hospital beds than is true statewide. Viewing FTEs within each region of the state points toward areas of Florida which may need enhanced recruitment efforts.

Data from the 2008 Nurse Workforce Survey will become even more valuable when results from the 2009 Nurse Workforce Survey are available later this year. In 2009, the remaining one-third of RNs and all Licensed Practical Nurses (LPNs) will renew their nursing licenses and have an opportunity to complete the survey. At the close of the 2009 renewal cycle, we will have complete data for Florida's nurse workforce. At that time, we will refine our analysis and provide more accurate information to stakeholders.

Estimation of the RN Workforce in Florida as of January 2009

Background

Nurse workforce planners and policy analysts need to know the amount of nursing labor provided by licensed nurses in order to make accurate forecasts of the nurse supply and to plan for employer demand in nursing-intensive healthcare settings. Though we have known the number of *nursing licenses* in Florida, until recently we have not known the amount of *nursing labor* provided in this state. In January 2008, the Florida Center for Nursing launched a Workforce Survey in collaboration with the Florida Board of Nursing and Medical Quality Assurance to collect this information. Integrated into online renewal, the 2008 Nurse Workforce Survey yielded information on: field of employment (nursing, non-nursing, not employed), employment setting, hours per week, and weeks per year worked.¹

Almost 100,000 Registered Nurses (RNs) and Advanced Registered Nurse Practitioners (ARNPs) answered the 2008 Florida Nurse Workforce Survey, or 92 percent of all nurses who renewed their nursing license in 2008. This very high response rate means that our data are of high quality and representative of the entire RN population in Florida. However, because nurses renew every two years, we obtained data on only half of all licensed nurses in Florida. In 2008, approximately two-thirds of RNs and ARNPs were scheduled to renew. In 2009, another one-third of RNs and ARNPs will renew along with *all* LPNs.

Though we lack data on the remaining one-third of RNs, it is possible to estimate the total RN workforce and the total number of RN full-time equivalent positions (FTEs) in Florida using survey data from nurses responding to the survey along with information on age, license status, and gender that we have for *all nurses* from the licensure database. In effect, we use information that we have about survey respondents to make an educated guess about the work behaviors of those who did not have an opportunity to respond to the 2008 Nurse Workforce Survey. The workforce definitions used to guide our analysis are presented in Appendix A to this report, and the estimation methods we used are detailed in Appendix B.

Our statistics on the RN workforce will be refined, and our first statistics on the LPN workforce will be available, after the 2009 Nurse Workforce Survey concludes. This interim report is intended to provide stakeholders with much-needed information on the nursing workforce in a timely manner as we wait for the complete picture to emerge. We begin by estimating the number of RNs in the Florida workforce, the number of nursing FTEs, and the average FTE for RNs and ARNPs. We then estimate the number of RNs and FTEs by employment setting, provision of direct care, age, and gender. We end by presenting regional estimates of the RN workforce and FTEs, FTEs per 100,000 population, and FTEs per 100 hospital beds.

Results

We analyzed survey and licensure data from Florida's *potential RN/ARNP workforce* as of January 2009 – the subset of licensed RNs and ARNPs with an active license status and a Florida address. A total of 190,302 RN and ARNP records were included, more than half of which contained survey data.

Estimated RN Workforce and FTEs

We found that 85 percent of Florida’s potential RN workforce is currently working in nursing. This translates to an estimated 161,778 RNs working in nursing, almost 10,000 of whom are ARNPs (Table 1). The percentage of Florida’s RNs working in nursing in 2008 is substantially higher than estimates for Florida from the National Sample Survey of Registered Nurses, which indicated that only 78.3 percent of RNs were working in nursing in 2004.² The difference may be related to the recent economic downturn, which could have encouraged nurses to return to or remain in the workforce. Other possible explanations include sampling error related to the small sample size used in the national study and the worsening Florida nursing shortage, which yields heavier patient loads for working nurses.

Overall, RNs in the *potential* nurse workforce had an average FTE of 0.76. This includes nurses who do not work in the field and have an FTE value of 0. This report focuses only on RNs working in nursing, so the average FTE value is higher (0.89). We estimate that Florida’s RNs contribute nearly 144,000 full-time equivalent positions to the state’s workforce: 134,651 RN FTEs and 9,062 ARNP FTEs. Overall, the average FTEs of RNs and ARNPs are almost equivalent.

Table 1. Estimated Number of RNs and FTEs by RN License Type

| License Type | Estimated # RNs Working in Nursing | Estimated # RN FTEs | Average FTE |
|--------------|------------------------------------|---------------------|-------------|
| RN | 151,869 | 134,651.4 | 0.892 |
| ARNP | 9,909 | 9,061.5 | 0.893 |
| Total | 161,778 | 143,712.9 | 0.892 |

Estimated Number of Working RNs and FTEs by Setting and Provision of Direct Care

Hospitals are by far the largest employer of RNs, employing over 98,000 RNs who constitute 62.4 percent of all RN FTEs (Table 2). All other employers of RNs are far smaller than hospitals, but taken together these other employers comprise almost 40 percent of RN FTEs. Home health care has about 10,000 FTEs and ambulatory care has over 7,000 FTEs, and these two employers combined employ over 12 percent of Florida’s RNs.

Not surprisingly, RN employment settings in Florida mirror those of the United States. National nurse employment data indicate that the most common employment settings for RNs in the US are hospitals, ambulatory care, public or community health, and nursing home/extended care facility settings.² The Florida Agency for Workforce Innovation (FAWI) also found that RNs are commonly employed in hospital settings, offices of physicians, home health care services, and nursing care facilities.³

Table 2. Estimated Number of RNs and FTEs by Employment Setting

| Employment Setting | Estimated # of RNs | Estimated # RN FTEs | Estimated % of FTEs |
|---|--------------------|---------------------|---------------------|
| Hospital | 98,419.2 | 89,660.8 | 62.4 |
| Home Health Care | 11,978.5 | 10,193.1 | 7.1 |
| Other | 10,831.6 | 9,384.8 | 6.5 |
| Ambulatory Care | 8,740.5 | 7,391.9 | 5.1 |
| Physician or other Health Provider Office | 8,088.2 | 6,967.2 | 4.8 |
| Long Term Care | 7,034.8 | 6,315.5 | 4.4 |
| Public/Community Health | 4,219.3 | 3,782.7 | 2.6 |
| Insurance Company | 3,130.9 | 2,990.5 | 2.1 |
| Nursing Education - Academic Setting | 2,881.7 | 2,396.9 | 1.7 |
| School Health | 1,779.6 | 1,392.2 | 1.0 |
| Corrections Facility | 1,405.8 | 1,324.8 | 0.9 |
| Healthcare Consulting / Product Sales | 856.7 | 710.6 | 0.5 |
| Temporary Agency | 845.0 | 619.5 | 0.4 |
| Occupational Health | 671.7 | 582.3 | 0.4 |
| Missing | 895.7 | -- | -- |
| Not working in nursing | 28,522.8 | -- | -- |

From our 2008 Nurse Workforce Survey, we know that 84.4 percent of RNs who are working in nursing provide direct care to patients. By applying this percentage to the estimates of the RN population who are working in nursing, we estimate that about 136,500 RNs throughout Florida provide direct care and they constitute almost 121,000 FTEs. The average FTE is similar for RNs providing direct care and those not providing direct care.

Table 3. Estimated Number of RNs and FTEs by Provision of Direct Care

| Provides Direct Care | Estimated # RNs Working in Nursing | Estimated # of RN FTEs | Average FTE |
|----------------------|------------------------------------|------------------------|-------------|
| No | 25,207 | 22,790.4 | 0.908 |
| Yes | 136,572 | 120,922.5 | 0.889 |

Estimated Number of Working RNs and RN FTEs by Age and Gender

Figure 1 shows the estimated number of RNs working in nursing by age category along with the average FTE for those nurses. The number of nurses in each age group increases steadily through age 60, and the average FTE remains fairly stable (from 0.92 at age 20-30 to 0.91 at age 51-60). The dip in FTE value from age 31 to age 50 may be explained by people taking time off or working reduced hours to care for children. After age 60, the number of RNs in the workforce declines sharply and their average FTE value decreases to 0.77. Upon reaching age 60, fewer RNs are working in nursing and those who are working work fewer hours.

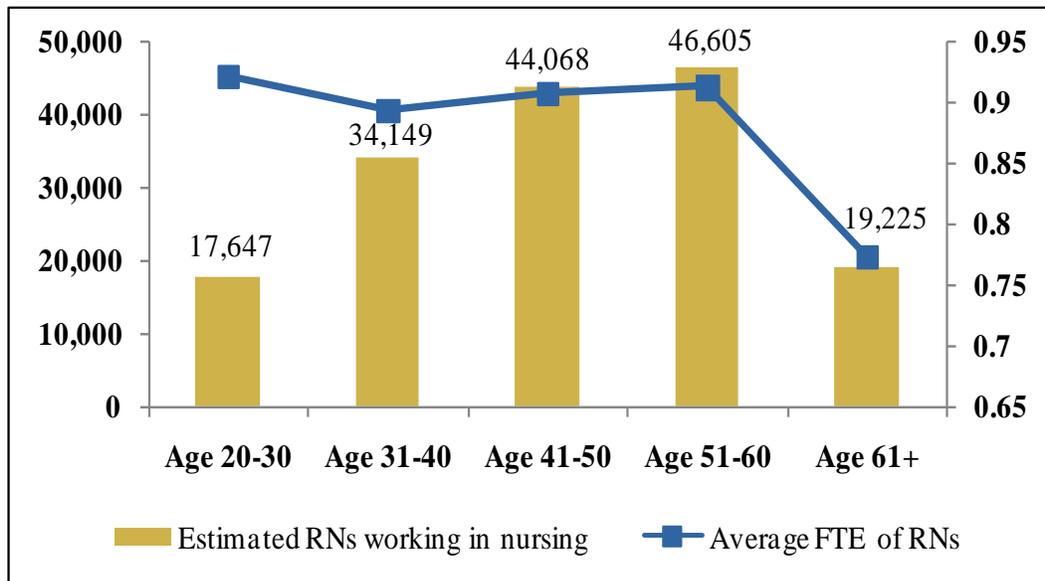


Figure 1. Estimated Number of RNs Working in Nursing and Average FTE by Age Group

RNs age 51 and over make up 44 percent of the RN population and contribute 40 percent of the FTEs (Table 4). Within the next 10 years, many RNs over 50 years old will likely be retiring or scaling back the number of hours worked. RNs age 30 and younger represent the smallest proportion of the RN population, but they also work more and thus contribute the highest average FTE (0.92). The cohorts of RNs age 40 and younger are not sizeable enough to replace the cohorts of older nurses. Encouraging these older cohorts of RNs to delay retirement and accommodating their continued participation in the workforce for more years would help to reduce the nursing shortage and provide mentoring for younger nurses entering the profession.

Table 4. Estimation of RN FTEs by Age Group

| Age | Estimated # of RN FTEs | Estimated % of FTEs |
|-----------|------------------------|---------------------|
| Age 20-30 | 16,192.3 | 11.3% |
| Age 31-40 | 30,354.7 | 21.2% |
| Age 41-50 | 39,760.1 | 27.7% |
| Age 51-60 | 42,305.2 | 29.5% |
| Age 61+ | 14,701.9 | 10.3% |

Nursing has always been a female-dominated profession. This holds true today, as women contribute an estimated 89.1 percent of RN FTEs (Table 5). However, male RNs tend to work more hours than do women, as evidenced by their higher average FTE of 0.946. Women may have a lower FTE because they may be more likely to work in positions with flexible or reduced hours if they are caring for young children or other dependents.

Table 5. Number of RNs and Estimation of FTEs by Gender

| Gender | Estimated # RNs Working in Nursing | Estimated # of RN FTEs | Average FTE | Estimated % of FTEs |
|--------|------------------------------------|------------------------|-------------|---------------------|
| Women | 139,249 | 123,205 | 0.886 | 89.1% |
| Men | 16,020 | 15,126 | 0.946 | 10.9% |

Number of RNs and Estimation of FTEs by Region

Table 6 shows the estimated number of working RNs and average FTEs by region. We found that nurses in the South region (Miami-Dade and Monroe counties) worked longer hours, as evidenced by an average FTE of over 0.9. Within each region, RNs and ARNPs had similar average FTEs.

Table 6. Number of RNs and Estimation of FTEs by Region of Florida

| Region | RN | | ARNP | |
|-----------|---------------------|-------------|---------------------|-------------|
| | Estimated Workforce | Average FTE | Estimated Workforce | Average FTE |
| Central | 31,033.3 | 0.882 | 1,765.5 | 0.894 |
| North | 18,257.5 | 0.890 | 1,384.9 | 0.886 |
| Northwest | 10,776.8 | 0.897 | 904.1 | 0.881 |
| South | 16,615.1 | 0.913 | 1,174.3 | 0.919 |
| Southeast | 29,821.8 | 0.892 | 1,839.3 | 0.896 |
| Southwest | 44,601.0 | 0.890 | 3,304.1 | 0.888 |

Ideally, the number of RNs within each region of the state would be roughly in proportion to that region’s population. In reality, the number of RNs per 100,000 residents varies widely across the state. Using data from Florida’s Office of Economic and Demographic Research,⁴ we estimate there were 801.5 employed RNs and 712.9 RN FTEs for every 100,000 residents. As Figure 2 shows, the North region has considerably more nursing labor per capita than does any other region: 931.1 RNs and 833.6 RN FTEs. In contrast, the South region has substantially less nursing labor per capita than any other region: only 650.7 RNs and 576.3 RN FTEs. The Southeast, Southwest, Central, and Northwest regions are roughly comparable to statewide estimates.

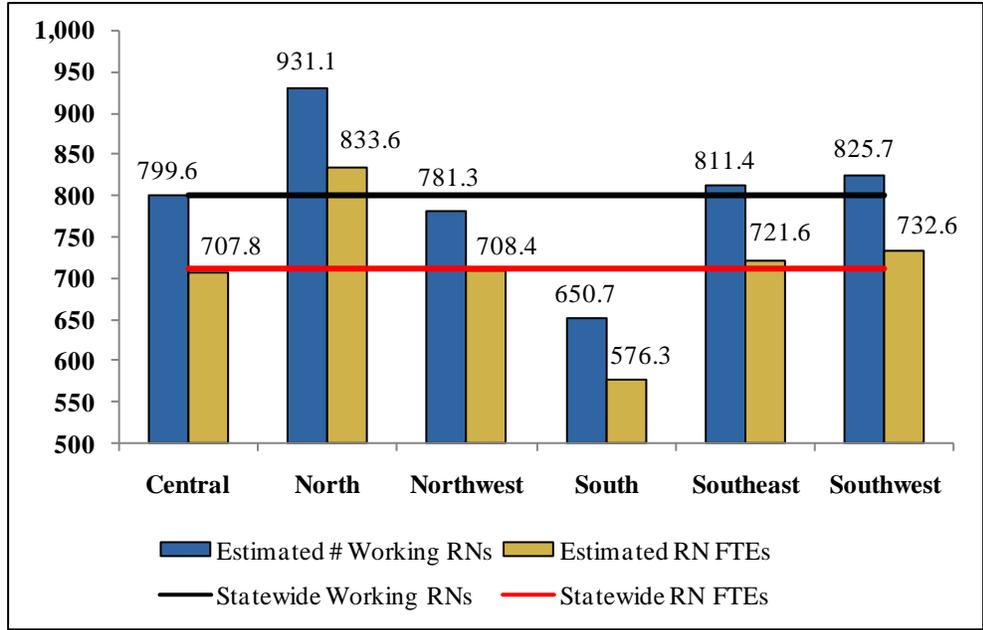


Figure 2. RNs and RN FTEs per 100,000 population by Region of Florida

As with RNs, the estimated number of working ARNPs varies widely across regions of the state (Figure 3). Statewide, we estimate there are 55 employed ARNPs and 48 ARNP FTEs per 100,000 population. Showing a similar pattern to RNs, the North has more working ARNPs than do other regions: 70.6 employed ARNPs and 61.2 ARNP FTEs per 100,000 population. In contrast, both the South and the Central regions have fewer ARNPs per capita than do the other regions.

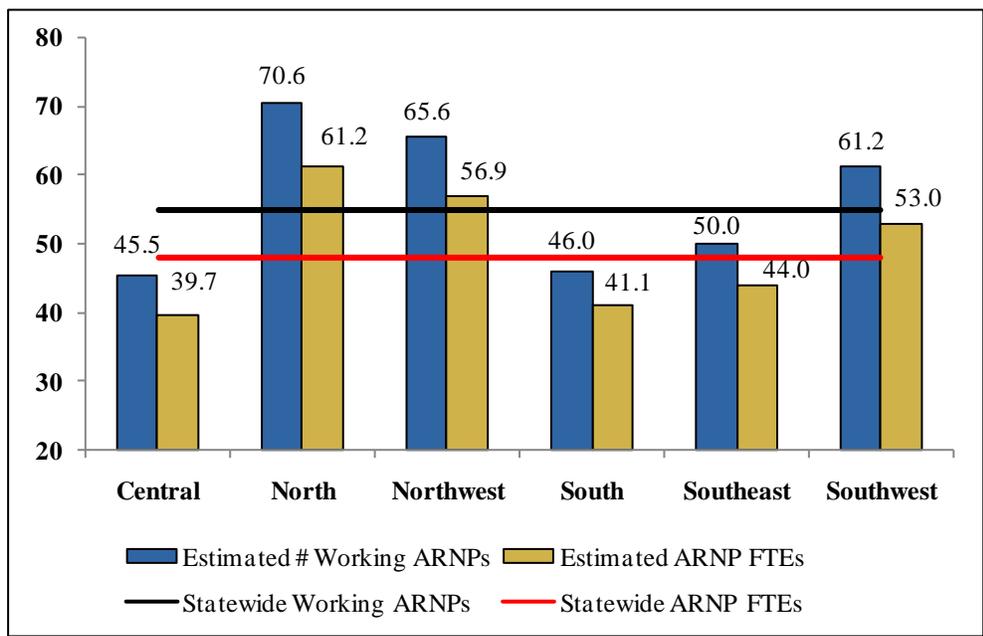


Figure 3. ARNPs and ARNP FTEs per 100,000 population by Region of Florida

It is important to note that our statewide estimate of 801 employed RNs per 100,000 is higher than that reported by HRSA for Florida based on the 2004 National Sample Survey (763 employed RNs per 100,000). Once again, it is not possible to know with certainty whether the difference is related to true change over time or the small survey sample used in the 2004 NSSRN (and resulting standard error of the estimate).

The metrics of employed RNs and RN FTEs per 100,000 are useful starting points, but they do not address regional differences in the population’s need for healthcare or the availability of facilities providing that care. A more useful metric for these purposes is the number of RN FTEs per 100 hospital beds (Figure 4). Fewer RN FTEs per 100 beds means that nurses may have a heavier workload and less time to devote to patients – suggesting the presence of a nursing shortage that is greater in magnitude in these areas. The South and Northwest regions have the smallest number of FTEs per 100 hospital beds, and both are substantially below the statewide average of 213.5 RN FTEs per 100 beds.

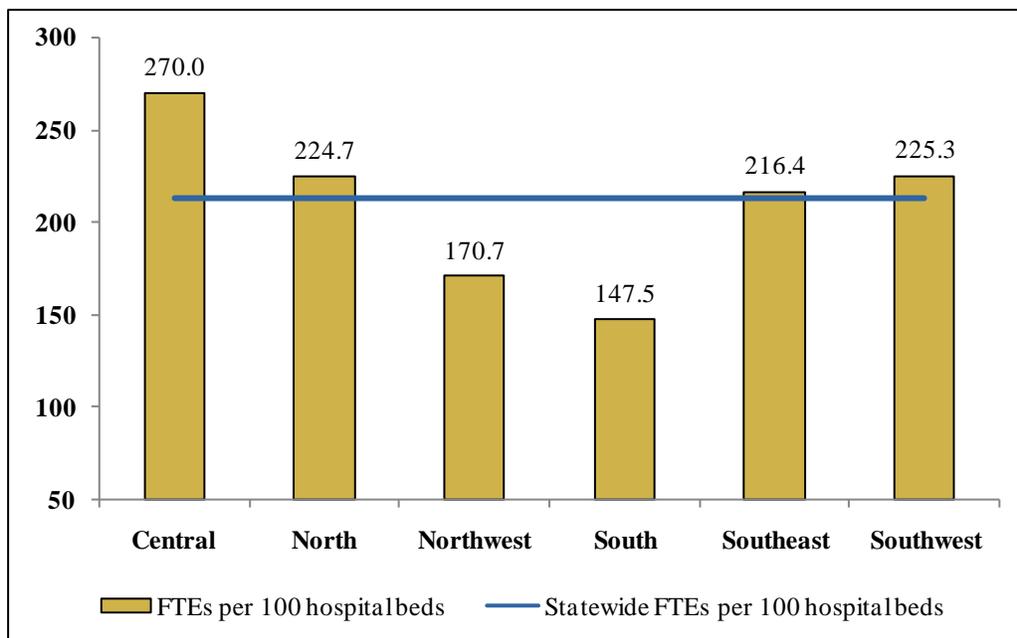


Figure 4. Estimated RN FTEs per 100 Hospital Beds, by Region of Florida

Assessment of regional information points toward a nursing shortage in South Florida that is more severe than other regions of the state. RNs in the South work more hours, have fewer colleagues proportionate to the population, and appear to have heavier workloads than is true in other regions. A close second is the Northwest Panhandle region of Florida, which also has far fewer RN FTEs per 100 hospital beds. Though very different in location, population size, and diversity, these two regions share the need for focused nurse recruitment and retention efforts.

Conclusions

These estimates underscore the fact that the number of licensed nurses is not equivalent to the amount of nursing labor provided in the state. Indeed, although more than 190,000 RNs and ARNPs are actively licensed and living in Florida, we estimate that less than 162,000 are actually employed in the nursing field. Further, since some work part-time, these nurses provide less than 144,000 FTEs of nursing labor. We estimate that fewer than 121,000 RN FTEs are dedicated to direct patient care. These figures represent the Center's first estimates of nursing labor provided in the state, and they help us to put the large number of licensed nurses in Florida into a more meaningful perspective.

The data also point to areas of concern for the future of this nursing shortage. We estimate that 65,830 RNs in our workforce are aged 51 and older, and they contribute a total of 57,007 nursing FTEs – nearly 40 percent of all FTEs. After age 60, the average FTE worked by a nurse decreases significantly, so we can expect many nurses to reduce working hours over the next 10 years. Many will also retire, leaving a sizeable gap in the nurse workforce. We have projected that the nursing shortage can be decreased by delaying retirement for two years.⁵ Hence, retention programs should target nurses for whom retirement is eminent. Encouraging these older cohorts of RNs to delay retirement and continue in the workforce for more years will require designing jobs that reduce the physical demands of nursing work and capitalize on the ability of older nurses to serve as mentors for younger nurses entering the profession.

Our estimates highlight the relative severity of nursing shortages in the South and Northwest regions of the state. The shortage is particularly acute in the South where there is a below-average number of nurses and FTEs, RNs and ARNPs work more hours, and there are fewer RNs per 100 hospital beds. These conditions result in a heavier workload for nurses and consequently feed the cycle of increased nurse turnover. Focusing nurse retention and recruitment efforts in the South and Northwest regions would help to alleviate the nursing shortage in these areas and ultimately improve healthcare.

Data from the 2008 Nurse Workforce Survey, used to construct these estimates, will become even more valuable when results from the 2009 Nurse Workforce Survey are available later this year. In 2009, the remaining one-third of RNs and all Licensed Practical Nurses (LPNs) will renew their nursing licenses and have an opportunity to complete the survey. At the close of the 2009 renewal cycle, we will have complete data for Florida's nurse workforce. At that time, we will refine our analysis and provide more accurate information to stakeholders.

References

1. Florida Center for Nursing. (2009). *Analysis of Workforce Survey Data from the RN Cohorts Renewing in 2008*. Retrieved October 9, 2012 from:
http://www.flcenterfornursing.org/DigitalLibrary.aspx?Command=Core_Download&EntryId=9
2. 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.
3. State of Florida Agency for Workforce Innovation (FAWI), Labor Market Statistics, Occupational Employment Statistics Program. Data accessed December 15, 2008 from:
<http://fred.labormarketinfo.com/default.asp>
4. Population data from the Florida Office of Economic and Demographic Research was retrieved from <http://edr.state.fl.us/population.htm>
5. Florida Center for Nursing (2008). *Forecasting Supply, Demand, and Shortage of RNs and LPNs in Florida, 2007-2020*. Accessed October 9, 2012 from:
http://www.flcenterfornursing.org/DigitalLibrary.aspx?Command=Core_Download&EntryId=193

Appendix A. Glossary of Workforce Definitions

RN Licensees – Individuals holding professional (RN, ARNP) licenses to practice nursing in the state of Florida.

Potential RN Workforce – Licensees with an active license, a license in good standing, and a Florida address. Nurses meeting these criteria have the potential to be a part of the Florida nurse workforce, but within this group are nurses who choose not to work in nursing or in Florida.

Estimated RNs Working in Florida – A statistically calculated approximation of the *actual* RN workforce in Florida. The actual nurse workforce will always be smaller than the potential nurse workforce, since some nurses choose not to work in the field of nursing or to work outside of Florida. Appendix B describes the methods used to estimate the actual nurse workforce using licensure and survey data.

Estimated RN FTEs in Florida – A statistically calculated approximation of full-time equivalent RNs within the Florida RN workforce. Full-time equivalent calculations incorporate information on whether *and* how much nurses work. Those working less than full time are assigned a fraction of an FTE. The number of RN FTEs will always be smaller than the estimated number of working RNs, since some nurses work part-time. Appendix B describes the methods used to estimate RN FTEs in Florida using licensure and survey data.

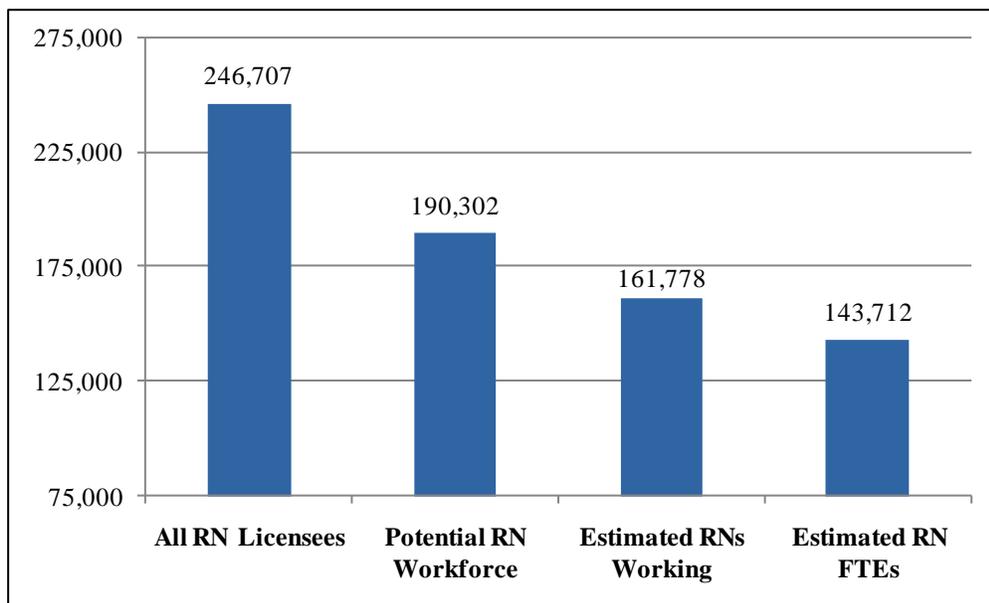


Figure A1. Florida’s RN Supply and Employment Situation

Appendix B. Technical Information on Report Methodology

The estimates presented in this report were generated using data from the 2008 Nurse Workforce Survey and the database of licensed nurses in Florida as of January, 2009. The licensure database was cleaned to isolate a subset of RNs and ARNPs who could reasonably be practicing nursing in Florida – the potential nurse workforce. Nurses included in the potential workforce must have an active nursing license and a Florida address. The goal of this analysis was to transform our count of nurses in the *potential* nurse workforce into 1) estimates of nurses who are *actually* working in nursing, and 2) estimates of the number of full-time equivalent positions in nursing that are filled by working nurses. These two goals required different estimation methods.

To generate estimates of the number of working nurses, we applied percentages derived from Nurse Workforce Survey respondents to our total count of *potentially working nurses* derived from licensure data. We found, for example, that approximately 85 percent of respondents to the 2008 Nurse Workforce Survey reported working in the field of nursing. Because of the very high response rate obtained in that study (92%), we are confident that these results represent the entire population of registered nurses very well – including those who were not due to renew in 2008 and did not have an opportunity to take the survey. Thus, we can estimate that approximately 85 percent of the *potentially working nurses* (N = 190,302) are *actually* working in nursing: about 161,778 nurses.

Other types of “head count” estimates were produced in similar fashion. Survey results were used to distribute the potential nurse workforce into different employment settings and regions. For example, we found that about 51.7 percent of all survey respondents were employed in the field of nursing and additionally reported that they worked in hospitals. When applied to the potential RN/ARNP workforce, this percentage generates an estimate of the number of nurses working in hospitals:

$$190,302 * 51.7\% = 98,419 \text{ RNs and ARNPs working in hospitals}$$

A more complicated approach was used to estimate the number of full-time equivalent positions in nursing. Rather than applying percentages, a more rigorous imputation approach was used to assign an estimated FTE value to each member of the potential nurse workforce. Survey respondents provided information on the number of hours they worked, and this information was used to assign an FTE value with the following formula:

$$\text{FTE weight} = \frac{(\text{hours/week} \times \text{weeks/year})}{1,976}$$

In this formula, the numerator represents the hours worked per year by the respondent, and the denominator represents the hours worked in a year if a nurse represents 1.0 FTE. A person working 38 hours per week (midpoint of 36 and 40, two typical full-time schedules for nurses) and 52 weeks per year (including paid time off) will work a total of 1,976 hours in one year. Nurses working more than 1,976 hours per year were capped at 1.0 FTEs, while those working less than the 1,976 hours per year threshold were assigned a fraction of an FTE. When a nurse reported he or she was not working in nursing, the FTE was assigned a value of 0.

The typical number of hours per year used in computations like this is 2,080, which is based on 40 hours worked per week for 52 weeks. Our survey collected “hours worked per week” in categories, and we used category midpoints to assign a single value to each respondent. Thus, full-time employees working 36-40 hours per week were assigned the midpoint value of 38, which is why our denominator is less than the value more typically used in computing FTEs.

Although the FTE value for members of the potential nurse workforce is unknown if they did not complete a workforce survey, we were able to use information we had about each non-responding nurse to make an “educated guess” about how much he or she worked. RNs who did not have survey data were assigned an FTE based on the average FTE (for survey respondents) of that person’s age group and gender. In cases where age group was missing, the assigned FTE was based on gender only (and vice versa). In cases where both age and gender were missing, the overall population FTE was assigned. RNs who were missing age and/or gender were included in the overall FTE calculations, but not in the respective age and gender stratified calculations. The sum of these FTEs (from survey respondents and non-respondents alike) resulted in our estimate of 143,712.9 FTEs in the *actual* nurse workforce.

Once FTE values had been imputed, the resulting dataset could be directly analyzed to produce estimates of FTEs by license type, region, gender, and any other variable that exists in the licensure database. Estimation of FTEs by employment setting, provision of direct care, or any other survey variables required some additional steps – it is not possible to “impute” an employment setting in the same way it is possible to impute a continuous variable such as FTE value. As with head count estimation, however, we were able to use the percentage distributions among survey respondents to distribute our total estimate of FTEs into different employment settings.

For example, we calculated that among survey respondents, 62.4 percent of all FTEs were found in hospitals. We applied this percentage to our estimate of total FTEs (143,712.9) to generate an estimate of FTEs found in the hospital setting:

$$143,712.9 * 62.4\% = 89,660.8 \text{ RN and ARNP FTEs in hospitals}$$